THE IRON AGE

New York, January 8, 1925

ESTABLISHED 1855 VOL. 115, No. 2

Inspection Standards for Steel Castings

Some of Those Laid Down by a Group of Electric Steel Foundries Based on Research—Meeting Specialization in Purchase Requirements

BY W. J. CORBETT*

THE manufacture of steel castings has been characterized during the last 10 years by many important developments. Among these is the matter of exacting specifications, to which engineers of tests of large railroad systems and metallurgists connected with the steel casting industry started to give concentrated attention in 1916, in a combined and harmonious effort to more thoroughly safeguard purchasers of cast steel parts used in railroad equipment. The war interrupted the program of investigation to which these men were committed. After the armistice was signed this cooperative effort was renewed and given a greater impetus because of the improvement in the art of making steel castings, which was a natural result of their extensive use for military and naval purposes.

Railroad and Chain Specifications

It may not be generally known that the research, in which the railroad engineers and steel foundrymen supplying them participated, was a very comprehensive one, extending over a considerable period of time. It finally resulted in the tentative adoption in 1922, by the American Society for Testing Materials and the American Railway Association, of specifications for carbon steel castings for railroads which had been formulated by a committee representing both organizations and which marked a distinct advance over the requirements for steel castings which had been in commercial use previously. This was the most significant instance of specialization in purchase requirements for steel castings which had been afforded by action of the American Society for Testing Materials.

Prior to the tentative adoption by the A. S. T. M. and the A. R. A. of specifications for railroad steel castings, the former society developed specifications for electric cast steel anchor chain as the result of a serious war-time need, prompting specialized manufacture. Purchase requirements for this material were covered by specifications tentatively adopted by the A. S. T. M. in 1918, which were slightly revised two years later. These specifications were the first to be published by the A. S. T. M., exclusively covering one cast steel product. Except for these, specialization in the specifications of the A. S. T. M. up to 1922 was restricted to brief supplementary clauses in general specifications, separately relating to castings for ships and to those for railroad rolling stock.

General and Federal Specifications

The preparation of the so-called railroad steel castings specifications naturally prompted a movement to

*Industrial engineer Electric Steel Founders' Research Group, 541 Diversey Parkway, Chicago.

Final Inspection of Castings Before Shipment

formulate more exacting purchase requirements affecting steel castings for general application. By that time a plan of cooperation between the A. S. T. M. and the A. F. A. had been developed to give the former organization the benefit of more information on this and other subjects through cooperating committees of foundrymen. After thorough consideration by a committee on which the A. F. A. was officially represented, the A. S. T. M. tentatively adopted in 1923, specifications for carbon steel castings for general use, which embodied requirements affording a much greater degree of security to buyers of miscellaneous cast steel parts than had been assured by commercial specifications based on those formerly adopted as standard by the A. S. T. M. The tentative specifications for general application, issued by the testing society in 1923, were adopted as standard by that organization in 1924, after being given a satisfactory trial for a year.

During the consideration by the A. S. T. M. of revised specifications for steel castings for general use, the United States Government, as the result of Secretary Hoover's efforts to effect Government standardization along commercial lines, through a joint committee representing the various consuming departments, endeavored to harmonize the views of bureau officials and to adopt specifications for steel castings which would meet all the requirements of the Government departments and which would be as nearly as possible like those in commercial use. After considerable study, master specifications for steel castings for the Government were promulgated in 1924, and superseded those that had been in use by several departments, which had substantially differed from each other, and which had for that reason imposed hardships on producers and on the Government during the war. These Government specifications are in many of the essential details in conformity with the specifications adopted as standard by the A. S. T. M. in 1924. They present, however, another instance of specialization, this time fortunately standardized to meet the views both of the Army and the Navy.

The latest development in the A. S. T. M., in the consideration of specifications for steel castings, is one that has been in progress for about a year, and constitutes another movement toward specialization in requirements, naturally following the significant tendency of modern steel foundry practice. This most recent form of activity regarding specifications for a particular cast steel product relates to valves and fittings for high temperatures and high pressures. A committee of the testing society is engaged now in the study of specifications for the material mentioned to be submitted to the membership.

Requirements Widely Applied Necessarily Lack Details

Those who are familiar with specifications for steel castings are in a position to appreciate the marked advance in the industry which specifications, recently formulated, typify. Necessarily such requirements are intended for broad application and leave important considerations to be covered by contract, or otherwise, decided between buyer and seller in the light of information regarding the particular use for the castings purchased. Specifications adopted by organizations of national scope can therefore be regarded as guides for general practice, to be supplemented as occasion justifies by more detailed requirements.

None of the specifications adopted and published by large organizations or by the Government have been formulated for the specific purpose of covering the manufacture of small steel castings, in which an increasingly large number of foundries are engaged. Special methods of production, necessitating extraordinary details of inspection, characterize this important branch of the industry. Realization of these facts has induced a group of foundries making small steel castings to apply inspection requirements specially formulated for this class of work. Inquiry has frequently been made regarding this matter of particular interest to many consumers. The writer has for this reason undertaken to supply information regarding this example of self-imposed requirements which safeguard buyers of the product of a highly specialized branch of the steel casting industry.

Specifications of Electric Steel Research Group

The five companies that constitute the group mentioned have been prosecuting joint investigations for several years under the name of the Electric Steel Founders' Research Group. The companies holding membership in this organization are: Fort Pitt Steel Casting Co., McKeesport, Pa.; Lebanon Steel Foundry, Lebanon, Pa.; Michigan Steel Casting Co., Detroit; Nugent Steel Casting Co., Chicago, and Sivyer Steel Casting Co., Milwaukee. Immediately on the organization of this group in September, 1920, the members decided to adopt inspection standards having detailed elaboration, to the observance of which each affiliated plant would be committed. This was feasible because of the similarity of the major processes and the product of the five member companies that specialize in the manufacture of small castings made from electric steel. These inspection standards are applicable only to the product mentioned and present an illustration of the way in which general specifications for the industry as a whole can be supplemented to the advantage of the producer and consumer.

For the following exposition, the writer has selected such portions of the group inspection standards as are distinctly supplementary to the requirements in general use. The significance of certain details of practice covered by the matter that follows can be appreciated only when the nature of the specialized product is kept in mind. Without attempting in every case to quote the exact language used in the group inspection standards, an explanation will be made of several features believed to be of particular interest, together with reasons for adoption in order to make the matter clear to the reader.

Proper Feeding

Liquid steel contracts as it cools, and causes shrinkage cavities to be formed in the interior of the casting, unless its sections are properly fed by reservoirs of metal, ordinarily termed heads or risers. The size and location of these are governed by the design of the casting, according to the foundryman's judgment. While these risers may be properly proportioned and placed, their good effects may be eliminated by unskillful pouring. The probable condition as to freedom from shrinkage cavities can be reasonably ascertained by observance of the following instructions from the group inspection standards:

> Care shall be taken to prevent the shipment of castings in which the heads were not adequately filled when pouring. Inspectors shall scrutinize carefully the appearance of the risers or heads on the flogging floor and shall properly safeguard the shipment of castings whose risers indicate a questionable feeding operation.

The application of various materials, having some of the properties of cement, to remedy the appearance caused by cavities of various kinds was formerly in general use in the steel foundry. In some cases metallic fillers have been used only where the surface appearance was affected without bad results on the serviceability of the part. In the belief that the use of such a smoothing compound is liable in any foundry to lead to bad practice by subordinates concerned with a high percentage of rejections rather than with the high reputation of the foundry, the group members eliminated the possibility of poor judgment, exercised by any one in the use of such a substance, by the adoption of the following clause:

> The use of any kind of metallic cement or smoothing filler or any casting shall be strictly prohibited.

The uses to which small steel castings are put require that most of them have a highly finished appearance. This must be secured in the group plants without the use of metallic cement.

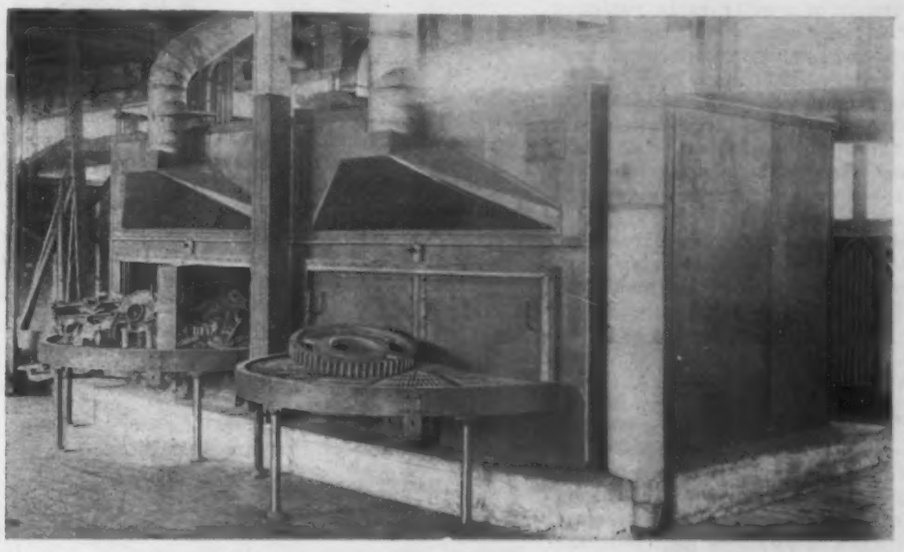
Welding Safeguards

The welding of minor defects in steel castings is recognized as a desirable procedure to be followed with

discrimination in the best steel foundry practice. There has been a great deal of advancement made in the art of welding with resulting better effects on the parts so treated. Careful molding practice diminishes the number of surface defects calling for the use of a welding process, but the nature of pattern equipment furnished by customers to producers of castings ordered in small lots frequently prohibits manufacture without slight surface blemishes that can be eliminated with perfect satisfaction by careful operators using the electric arc or gas torch. The personal equation is a highly important factor in the welding operation. Realizing this, the group plants eliminated the stimulus to very rapid and unskillful welding by the following clause in their inspection standards:

> For security against careless work, no welding operator shall be compensated on a piece-work basis or plan involving a premium for quantity production in welding.

Recognizing, as do all producers and consumers, that a great deal of judgment must be exercised in the welding of defects even when the best operators and the most effective apparatus are employed, safeguards have been provided as to the kinds of blemishes which can be eliminated by the welding operation without any possible bad effect on the satisfactoriness of the



Sandblast Apparatus for Cleaning Surfaces of Steel Castings at One of the Group Plants

Steel Castings Sawed Into Pieces for Inspection as to Solidity and Defects

Annealing Furnace with Racks Containing Castings to Be Heat Treated

part. For this purpose the group plants adopted a clause that reads as follows:

> The repairing by welding of any defect shall only be permitted when authorized by the inspectors or by their superiors responsible for the strict application of the inspection standards. Defects shall be thoroughly opened up before welding. When practicable all welds shall be made smooth and level with adjacent surfaces by grinding or chipping, preferably the former.

The requirements, that defects be thoroughly opened up and that all foreign matter be thoroughly chipped out before welding, present a novelty as to published practice covering steel casting manufacture. The reason for carefully cutting out every particle of sand, slag or other foreign material before the melting temperature of welding is applied to a cavity is obvious to those familiar with such operations. A good weld cannot be made without the complete elimination of material which has or may assume the characteristics of slag that will form a non-metallic barrier, preventing fusion.

Since it is generally recognized that heat treatment is required to give steel a satisfactory granular structure and to relieve the internal strains sometimes occasioned when steel solidifies, the group inspection standards require that every casting that is welded be subsequently heat treated, irrespective of any such treatment given the casting prior to welding.

Heat Treatment

The consideration given by producers and consumers to the heat treatment of steel castings has been marked since the World War began. It may be kept in mind that the term heat treatment as more recently accepted means any method of applying heat after the casting has been poured, irrespective of the number of applications of heat. The term "annealing" is now generally recognized as meaning heat treatment followed by relatively slow cooling, as in the oven. The word "normalizing" is used to mean heat treatment followed by an intermediate cooling operation as in room temperature, when the castings are withdrawn from the oven and allowed to cool without any regulated fall in the temperature. Definitions substantially in accordance with those mentioned are being promulgated by societies interested in the subject and are receiving general approval.

Accepting unreservedly the opinions of experienced metallurgists that every steel casting should be heat treated, the group inspection standards require this operation, except when the customer issues specific instructions that his castings are to be delivered in a "raw" condition, or as cast.

The procedure for heat treatment specified in the group inspection standards was adopted after a thorough investigation conducted by this research organization, the results of which were given to the industry as a whole through a paper written by H. A. Neel, general manager Michigan Steel Casting Co., presented at the 1923 convention of the American Foundrymen's Association. The following clause from the group inspection standards covers detailed instructions regarding temperature:

> The maximum temperature applied to all carbon steel castings not exceeding 0.30 per cent carbon shall be no lower than 1600 deg. Fahr. (870 deg. C.) nor higher than 1650 deg. Fahr. (900 deg. C.). After the required maximum temperature has been applied for the proper time, all carbon steel castings shall either be cooled in the heat-treatment oven to 1000 deg. Fahr. (540 deg. C.) or lower before removal from the oven; or be permitted to cool in the air at room temperature, immediately after removal from the oven while the latter is subjected to the prescribed maximum temperature. The maximum limit of 1000 deg. Fahr. (540 deg. C.) permitted for the oven cooling of carbon steel castings shall be determined by pyrometer readings or by the loss of all temporary reddish color resulting from heat.

It has been ascertained that the elements of time and temperature should not be specified except with relation to each other. Each of these factors must be governed to considerable extent by the sections of the castings treated. A fracture test piece 1 in. thick at the thinnest part was selected by the group plants as typical of the heavier sections ordinarily produced by them. This specimen provides a valuable supplement to the pyrometer for determining the effect on structure. The time element is provided for by the following clause:

> The maximum temperature (between permissible ranges) employed in every heat treatment that is originally intended to produce the desired results without supplementary heat treatment shall be maintained continuously for a sufficient length of time to guarantee the proper granular structure. This period shall be determined by the appearance of the structure in a fracture test piece not less than 1 in. thick at the thinnest part, placed in the coldest location in the oven occupied by any casting.

It is conceded that modern heat treatment practice must employ the use of recording pyrometers which leave a true record of the fluctuations of temperature. The size of the furnace should govern the number of thermocouples used with each pyrometer. The nature of the product of the group plants is such that relatively small heat-treating furnaces are used. It is required in these plants that at least two thermocouples shall be connected to each recording pyrometer. The following clause is self-explanatory:

> All heat-treating operations shall be accompanied by the use of recording pyrometers. All recording and indicating pyrometers shall be periodically calibrated and shall always be maintained in first-class condition.

Use of Fracture Test Pieces

The use of the fracture test piece is obligatory in the group plants largely because, in heat treatment furnaces of the best design, there are apt to be fluctuations of temperature due to the practical difficulty in providing for a thorough heat distribution. The following clause was adopted with this condition in mind:

> To supplement the use of pyrometers, at least one fracture test piece not less than 1 in. thick at the thinnest part shall be placed in each heat treatment load. At least once every week one such load in each oven shall have not less than six such test pieces distributed throughout the load. The purpose of these test pieces is to determine by nature of the fracture, the suitability of the temperature actually applied to all castings, whatever be their location or partial insulated condition in the heat-treatment oven as compared with the pyrometer couples.

In practice, this regulation necessitates the reheating of such castings as are shown by the nature of the fractured test pieces to require further refinement of structure.

The distribution of heat is often interfered with by placing castings on the bottom of the oven or on the floor of a truck that may be used in conjunction with the oven. If the hot air enters the chamber, as it usually does, above the floor-line, the castings placed directly on the bottom of a truck may have inadequate opportunity to be heated to the temperature shown by the pyrometers. This is provided for in the group inspection standards by the following clause:

> There shall be placed under every load of castings to be heat-treated, a suitable number of racks for the purpose of providing air space under the pile of castings to be heat-treated, so that such air space will permit the proper circulation of heat throughout all portions of the pile of castings.

External and Internal Examination

In ordinary specifications there are general clauses that are of familiar phraseology, regarding trueness to pattern and certain surface defects more or less common. Supplementing these, the group inspection standards prescribe that drawings and suitable gages to maintain working dimensions of castings within required tolerances shall be used whenever the number of castings ordered makes these practicable. It is further provided that all gages be periodically examined for comparison with drawings or master gages, according to the frequency of use and the possibility of inaccuracy.

As the thorough cleaning of small castings, or those having thin sections is a vital consideration because of most of the uses for such products, foundries special-

izing in them characteristically devote more attention to finishing operations than do shops making heavy steel castings. Blasting, tumbling and other final operations intended only to improve appearance, are constantly given special consideration. The problem of thoroughly cleaning thin steel castings is magnified because of the high temperature required to pour them, necessitating great care in the preparation of the molding sand of high refractory value. The group inspection standards require that within practical limits, adhering sand and the scale formed in heat treatment shall be removed. They provide that the cleaning operations be intensively applied on all surfaces engaging other parts in assembly and in recesses provided for the application of pins, bolts, rivets or other parts.

Occasionally producers and consumers have been fully satisfied with the surface appearance of steel castings, only to find as the result of subsequent machining operations that they were useless for the purpose intended. There is probably no condition that gives rise to more dissatisfaction by all concerned, when it happens, than the one mentioned. The group inspection standards contain a clause that serves to prevent much of the trouble arising from too much reliance on surface appearance. This clause reads thus:

> All production jobs shall be accompanied by frequent and thorough machining for examination as to internal defects in locations susceptible to them.

In practice this means the deliberate destruction for testing purposes, of many castings, to make sure of the satisfactoriness of the heading and gating practice, provision for fillets, and ability of the mold and its cores to withstand the destructive action of the flowing metal.

Adherence to Inspection Standards

It may be surmised that the plants that have jointly adopted these strict inspection standards have been diligent in providing for their observance. The fact that the companies are actually competitors of each other causes each affiliated plant to demand that the associated foundries use the same degree of zealousness in applying what was adopted. The problem of carrying out this intention is greatly simplified by the fact that the research director of this group is in effect a supervising inspector who, on his periodical visits to each plant, personally examines the castings in process of manufacture and on the shipping floor. When he finds conditions are not in accord with the inspection standards, he advises the manager of the plant concerned of the dereliction. He may in his discretion notify the managers of the other affiliated companies, of the undesirable condition. The probability that an unprejudiced man will advise all the group members when one of them disregards his joint obligations has an effect on compliance that is compellingly transmitted to all shop subordinates concerned.

Other Requirements

Other regulations of the research group besides those referred to have been adopted, covering such essential matters as chemical analysis, physical tests, etc. Detailed mention of these is not made here because of their conformity with requirements recently adopted by large organizations that are reliable sources from which steel casting specifications are issued.

Possibility for Further Differentiation

It will be clear to the consumer that the strikingly specialized manufacture of steel castings has been attended by equally interesting developments, affording protection to the buyer, to which progressive steel founders have voluntarily contributed. It may be predicted that the tendency to adopt requirements for special application to particular classes of steel castings will be extended, to the distinct advantage of the users of the product and perhaps with considerable advantage to the manufacturers.

Modern foundry practice has resulted in a greater degree of specialization in purchase requirements and inspection details for steel castings than has been developed for any other class of castings. Thus is reflected, to a considerable extent, the remarkable advancement of this basic industry.

Welsh Tin Plate Industry

During the first six months of 1924 the Welsh tin plate industry (including terne plates and black plates) experienced perhaps the most prosperous period of its history, Consul A. B. Cooke reports to the Department of Commerce. The output of tin, terne and black plates averaged 70,500 tons per month, compared with 60,600 tons per month in 1923, and with a slightly lower rate of output in 1913, the record pre-war year in the industry. The exports of these commodities in the first six months of 1924 averaged 50,600 tons (72 per cent of the production), compared with 45,900 tons per month (76 per cent) in 1923, and with a slightly lower average in 1913.

The passing of the mid-year saw, however, a decline from the high mark of the first six months. Statistics as to output in the second half-year are available as yet only up to the end of August, in which month the production was only some 59,900 tons, as compared with 81,100 tons in July and an average of 70,500 per month in the first half-year. Evidences indicate that since August and up to the date of the end of the year the tonnage of output has tended to decline still further.

Exports for the September quarter averaged 43,400 tons per month, as compared with 50,600 tons in the first six months. In October there was a slight recovery to 45,800 tons. Exports for November, judging from tentative estimates, will be about 40,000 tons.

Causes of the Decline

Causes assigned for the decline in the trade are given as: 1.—High cost of production, due in part to the rise in price of crude tin; 2.—Competition on world markets; 3.—Development of tin plate industry in other countries—Germany, France, Norway, Italy, India, Spain; 4.—Placing or increasing of import duties upon tin plate, by Belgium and India. The competition of American exporters upon South American markets and those of China and Japan is held partly responsible for the decline in exports of Welsh tin plates to those markets; and the revival of the German tin plate industry is cited as a cause of the falling off in sales to European markets.

Winter Sectional Meeting of Steel Treaters

The sixth sectional meeting of the American Society for Steel Treating will be held at the Hotel Sinton, Cincinnati, on Thursday and Friday, Jan. 15 and 16. Thursday will be devoted to technical sessions, one paper in the morning and the rest in the afternoon, while in the evening an informal dinner will be held. Friday will be devoted exclusively to visiting plants in Cincinnati and vicinity under the direction of the Cincinnati chapter. The papers to be presented are as follows:

"Sample Preparation for High Power Photomicrography," by R. G. Guthrie, metallurgist, industrial gas department, Peoples Gas Light & Coke Co., Chicago.

"High Tensile Strengths with Low Carbon Steels," by R. H. Smith vice-president, Lamson & Sessions Co., Kent, Ohio.

"Wear and Wear Testing," by G. W. Quick and S. J. Rosenberg, Bureau of Standards, Washington.

"Gearing as a Medium for Industrial Power Transmission," by O. N. Stone assistant chief engineer Van Dorn & Dutton Co., Cleveland.

Corrosion Resisting Steels of the Iron-Carbon-Chromium and the Iron-Carbon-Chromium-Silicon Series," by T. Holland Nelson, metallurgist, United Alloy Steel Corporation, Canton, Ohio.

Net operating income of Class 1 railroads for the first 11 months of 1924 is given by the Bureau of Railway Economics, Washington, as $898,257,770, or at the annual rate of 4.32 per cent on their tentative valuation. This compares with $913,336,797 and 4.52 per cent in 11 months of 1923.

NEW MILWAUKEE MILLERS

Motor Mounted in the Column—Friction Clutch and Power Rapid Traverse Among Refinements

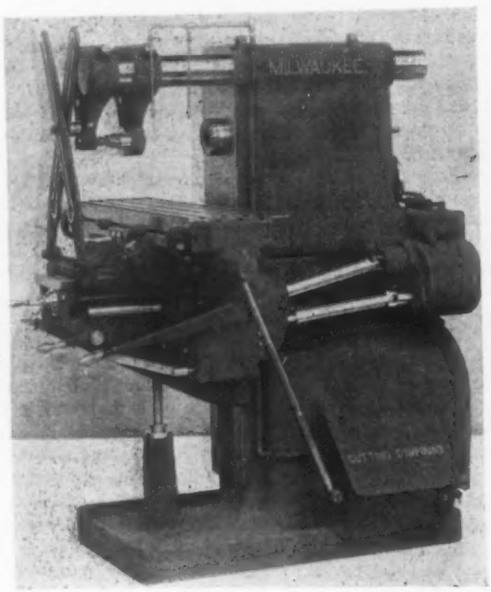
A line of motor-in-the-base milling machines in which the driving motor is mounted as shown in the accompanying illustration, providing a compact and simplified unit, has been placed on the market by the Kearney & Trecker Corporation, Milwaukee. Less floor space is occupied, and utilizing the space in the lower part of the column and putting the motor out of the way, protected from dust and dirt, is stressed as leaving fewer corners in which dirt may accumulate. It is claimed also to provide a quieter and more economical installation.

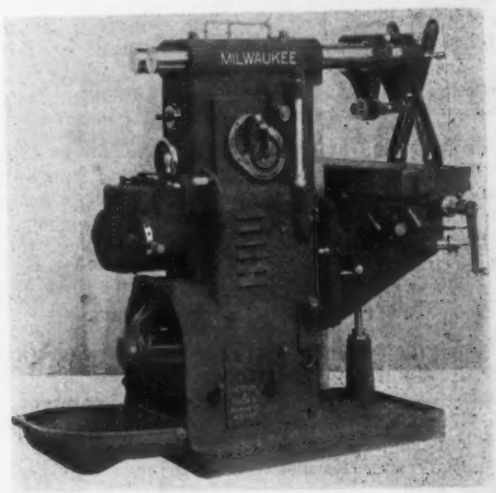
In making this addition to its standard line, the company has adhered to its direct geared drive, no belts or chains being employed. The driving pinion is mounted on the armature shaft and meshes with the driving gear leading up through the gear train in the column. The motor is placed with the driving pinion toward the front of the machine, the brushes and commutator being reached by merely removing the hinged cover at the rear of the column. The entire motor can be slid out of its housing conveniently if any adjustments or repairs are required. Adequate lubrication of the motor bearings is provided for, outside of the machine. Ample motor ventilation is obtained by louvers placed as shown.

Other refinements include a new friction clutch and a "built-in" power rapid traverse for the table. The drive is through the new friction clutch, with the control lever extended and brought out to the front of the machine. This lever may be adjusted to any angle desired for the convenience of the operator, or may be swung completely out of the way for very large work.

A lever directly at the front of the table engages the power feed in a direction determined by the lever movement. A second lever, conveniently located at the right of the operator as he stands in a normal operating position, may be shifted to determine whether table movement shall be at the feed or power rapid traverse rate. The levers are separated and the movements cannot be confused. Other levers controlling the engagement of cross and vertical feeds are located in convenient positions and are separate from the table control levers.

The all-geared drive, automatic lubrication of column gearing, double overarm and other features of the milling machines previously marketed by the company are included in the new machines. Eight sizes are available; a No. 2AS and a No. 2A manufacturing, No. 2BS, No. 2B and No. 3 plain, No. 2B, No. 2BS and No. 3 universal. The friction clutch is standard on all models, and the power rapid traverse is standard on all sizes except the No. 2AS and 2BS.





Location of the Motor Is Shown in Rear View Above. Louvers on the side provide adequate ventilation. Direct geared drive is employed and a new friction clutch is a feature, as well as "built-in" power rapid traverse for table

Increased Production of Automobile Bodies

Products to the amount of $1,013,113,010 were turned out in 1923 by 2122 establishments engaged primarily in making motor vehicle bodies, tops, wheels, radiators, fenders, windshields, transmissions, mufflers, axles, steering wheels and other assemblies and parts, but not engines or complete chassis. This is an increase of 148 per cent over the $408,016,532 produced by 1974 establishments in 1921. The number of wage earners increased from 69,119 to 163,530 and their wages from $96,779,079 to $252,611,632.

Horsepower to the amount of 463,603 was employed in 1923, while the coal consumed amounted to 831,453 net tons. In 1923 more than 200 establishments were located in each of four States, New York having 272, Illinois 212, Ohio 208 and California 201. Pennsylvania and Michigan followed with 175 each, while 39 other States had less than 100 in each case.

San Francisco Materials Companies Combined

Gunn, Carle & Co., San Francisco, have purchased the Pacific Materials Co., that city. Both companies will continue to function, as the business of the Pacific Materials Co. will be conducted under the management of O. P. Shelley, who will retain his interest in the business and the vice-presidency of the firm. The offices of the Pacific Materials Co. at 525 Market Street will be closed, and consolidated with the Gunn, Carle & Co. offices at 444 Market Street. The Bluxome Street warehouse of the Pacific Materials Co. will be discontinued and stocks transferred to the Gunn, Carle & Co. warehouse at Tenth and Bryant Streets, the capacity of which will be doubled.

Since succeeding to the business of Woods & Hubbart, which was established in November, 1909, Gunn, Carle & Co. have specialized in the fabrication and installation of steel bars and in handling pig iron, coke and ferroalloys, and have also represented manufacturers of heavy duty industrial trucks and other lines. The Pacific Materials Co., which was incorporated in 1914 as a consolidation of the Lilley & Thurston Co., organized in 1903, and the Waterhouse & Price Co., founded in 1906, handles builders' supplies.

Raps Government Meddling in Business

Senator Bruce Points Out Dangerous Tendencies in His Own and Other Parties—Calls for Return to Sound Principles

WASHINGTON, Jan. 6.—Senator William Cabell Bruce, Democrat, of Baltimore, has the courage of his convictions and his convictions, as it happens, are that there are such things as legitimate business and wealth. His quick support of these principles and his able manner of presenting them, invariably reflecting the thought of a learned lawyer and scholar, have attracted much attention, as has also his readiness to combat political fads and dangerous theories which he says have been espoused by many Democrats and caused the party to lose the confidence of the people temporarily.

His views on business and government were interestingly set forth in a debate he had on Monday of last week with Senator Pat Harrison, Democrat, of Mississippi, when the Underwood Muscle Shoals bill was taken up for discussion. Senator Harrison had made an attack on the so-called fertilizer trust.

"I, for one, am not to be intimidated by these vague references to 'trusts,'" said Senator Bruce. "There are trusts, of course, that should be restrained by the strong curb of the law. We all know that. We all know that wealth has its dangers, though no greater dangers than poverty. Many years ago the distinguished speaker of the House, Thomas B. Reed of Maine, declared that a statesman was a dead politician; and so, when you run it down, you find that one-half of these mythical trusts, these ogres, these octopuses, these fabled monsters, are nothing but legitimate business combinations that have happened, solely by their skill and close attention to business and good management, to attain an extraordinary degree of success."

Speaking of the Underwood bill, Senator Bruce made known his ideas concerning the Government competing with private business.

"I am hostile to it (the bill) because I think that the Government has no right to enter into competition with its own citizens in any ordinary industrial line of business," said Senator Bruce, "and I regard the proposition to have it establish a commercial fertilizer factory or factories at Muscle Shoals as the longest stride that has ever been taken in its history toward the general socialization of industries of all sorts in the United States."

Declaring that he is beginning to think that there is a general movement throughout the United States in the direction of the socialization of all industry, Senator Bruce said:

"Before I became a member of this body I had never formed any due conception of the extent to which this process was eating into the very core of our national life. Now, it seems to me, we have reached a point where almost every day of the world we have a clash between the old American ideas with reference to the true functions of the state and these modern ideas about them."

Senator Bruce thinks paternalism in government has reached such a point that he expressed his disgust by saying:

"I sometimes think that we should tear down the Statue of Liberty from the summit of this Capitol and place a big black pap bottle in its place. The idea seems to be that the Government is something to which resort is to be incessantly had for the coddling and artificial stimulation of private interests."

Senator Bruce's own modest biography in the Congressional Directory reveals the training of the high-grade lawyer and scholar who has entered upon politics. His biography does not show it, but he himself said: "I am not connected with any trust or even any corporation, except the Maryland Life Insurance Co., of which I have been the general counsel for many years. I owe no personal obligations of any sort to any business interests."

Born at Staunton Hill, Va., March 12, 1860, Senator Bruce received his legal education at the University of Virginia and the University of Maryland Law School. In addition to private law practice, he served as head of the Baltimore City Law Department and general counsel of the State Public Service Commission of Maryland. He was a member of the Maryland State Senate in 1894 and was made president of that body in 1896. As a scholar, particularly of political history, Senator Bruce has become well known. He is author

DIVIDE the Democratic party into two wings, the one called "fundamentalist" and the other "modernist," and no difficulty would be experienced in classifying Senator William Cabell Bruce of Maryland. He clearly is a "fundamentalist," with no use for mere fads that might appeal to the political imagination. Utterly devoid of anything that savors of demagogism, Senator Bruce has attracted nation-wide attention during the two years that he has been in the Senate by his frank views that are remindful of the rebirth of the principles of such great leaders of his party as Jefferson, Jackson and Cleveland. Rugged, scholarly and sincere, the Senator from Maryland is outspoken and is ever ready to sound a warning to his party, which he considers has strayed widely from its original principles. He has no use for the "isms" which he claims have crept into it, and in his opinion have caused the people to lose confidence in it temporarily. His support of legitimate private business against Government encroachment is what precipitated the debate in the Senate on Monday of last week with Senator Harrison, Democrat, of Mississippi.

(The photograph is copyrighted by Harris & Ewing)

of "Benjamin Franklin Self-Revealed," "Below the James" and "John Randolph of Roanoke."

Senator Dial Lauds Senator Bruce

Senator Bruce of Maryland was lauded by Senator Dial of South Carolina last Saturday.

"In all the Muscle Shoals debate," said Senator Dial, "the Senator from Maryland, Mr. Bruce, is the only Senator who has struck the root and foundation of the issue, the unquestionable, blazing, plain truth that Government ownership and control of utilities in time of peace is absolutely, diametrically and insolently contrary to the fundamental principles of the Democratic party, to the aspirations and craving that gave our Republic birth and the inborn instincts of the American people.

* * *

"Let us try ourselves in the court of our own common sense. We must find the weight of evidence is all against us. Let us manfully realize the truth that we are beaten because we deserve to be beaten; because by our own weakness and cowardice and errors we have alienated public confidence.

"We have fallen into shifty opportunism, seizing every fad of the moment, yielding to every pressure from lobbies and galleries, veering to every wind that seemed to promise popularity, regardless of the direction from which it blew. We have infected ourselves and our party with political miasma and pestilence, brought here from fetid and sickening atmospheres of the old countries. We have permitted the great Democratic party to be degraded and used by a small alien faction merely as an instrument of annoyance and hindrance to administrations.

"It is a mortifying, bitter truth that the quiet and close thinking man in the White House, just elected President as the Republican nominee, is a better Democrat in many essentials, more in accord with the foundation principles of the Democratic party than many men who have obtained high and honorable places as ostensible Democrats."

Senator Brookhart of Iowa took just the opposite view of the situation. He is for Government operation of the Muscle Shoals plant. Senator Bruce, he said, was opposed "to the Government doing anything that in any way interferes with the business transactions of private parties."

The Iowan, who was recently virtually read out of the Republican party by his Senate colleagues of that faith, said he regarded this Government as the most efficient in the world and he was confident it could administer Muscle Shoals for the public good.

MACHINERY EXPORTS FALL OFF

November Shipments 9 Per Cent Below October—1924 Shows 11 Per Cent Advance Over 1923

WASHINGTON, Jan. 5.—Exports of machinery in November, 1924, were valued at $25,502,430, as against $28,094,797 in October, and for the 11 months ended with November, 1924, they were valued at $294,240,679, compared with $264,501,390 for the 11-month period of 1923. Metal-working machines exported in November numbered 3791 valued at $715,327, compared with 5562 valued at $834,806 in October.

Imports of Machinery Into the United States

(By Value)

	November		Eleven Months Ended November	
	1924	1923	1924	1923
Metal-working machine tools	$29,689	$26,590	$317,045	$359,516
Agricultural machinery and implements	147,316	75,061	2,139,330	810,736
Electrical machinery and apparatus	743,749	142,790	1,117,917	1,591,354
Other power generating machinery	5,246	10,702	89,997	1,766,519
Other machinery	318,149	212,956	3,687,628	2,534,270
Vehicles except agricultural	110,451	112,973	1,716,457	2,553,016
Total	$1,354,600	$581,072	$9,068,374	$9,615,411

Metal-Working Machinery Exports

	November, 1924		October, 1924	
	Number	Value	Number	Value
Lathes	111	$140,620	61	$103,029
Boring and drilling machines	102	31,218	197	80,057
Planers, shapers and slotters	22	34,381	18	31,907
Bending and power presses	46	44,672	75	178,915
Gear cutters	53	74,728	6	10,707
Milling machines	36	57,937	47	68,953
Thread-cutting and screw machines	60	52,707	44	29,638
Punching and shearing machines	14	20,069	16	6,086
Power hammers	17	27,813	147	36,044
*Sharpening and grinding machines	92	124,123	330	166,238
Chucks, center, lathe, drill and other metal-working tools	2,010	32,455	3,179	45,582
Pneumatic portable tools	1,228	74,667	1,442	77,650
Total	3,791	$715,327	5,562	$834,806

*External and internal grinding machines only; "other sharpening and grinding machines" are reported now by weight instead of by number.

Imports of machinery in November were valued at $1,354,600, compared with $604,226 in October. For the 11 months ended with November they were valued at $9,068,374, as against $9,615,411 for the corresponding period of last year.

Machinery Exports from United States

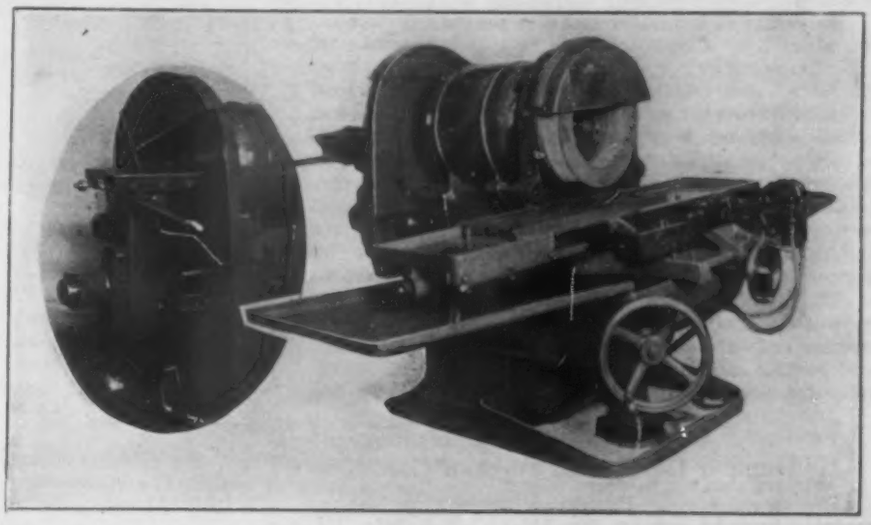
(By Value)

	November, 1924	November, 1923	Eleven Months Ended November, 1924	Eleven Months Ended November, 1923
Locomotives	$485,820	$460,032	$5,068,818	$3,996,262
Other Steam Engines	40,142	105,440	946,417	1,132,027
Boilers	120,075	163,297	1,822,317	1,291,749
Accessories and Parts	226,757	128,966	3,459,471	1,253,668
Automobile Engines	419,905	285,705	3,164,312	5,061,861
Other Internal Combustion Engines	741,895	578,420	6,949,321	6,357,366
Accessories and Parts for	228,636	274,741	3,278,657	3,168,391
Electric Locomotives	14,440	51,624	2,200,185	3,062,489
Other Electric Machinery and Apparatus	565,676	832,214	7,299,501	7,989,396
Excavating Machinery	211,738	136,182	2,202,692	1,483,319
Concrete Mixers	41,740	55,568	591,358	511,980
Road Making Machinery	68,112	90,134	1,123,798	860,972
Elevators and Elevator Machinery	140,630	310,370	1,797,734	3,114,595
Mining and Quarrying Machinery	742,708	976,724	4,219,108	9,256,908
Oil Well Machinery	476,940	661,559	6,049,340	6,129,315
Pumps	622,089	702,033	6,729,948	6,842,561
Lathes	140,620	151,003	1,102,025	1,011,525
Boring and Drilling Machines	31,218	75,555	532,468	665,631
Planers, Shapers and Slotters	34,381	19,500	288,514	232,846
Bending and Power Presses	44,672	64,000	461,446	359,926
Gear Cutters	74,728	65,656	376,482	204,360
Milling Machines	57,937	36,871	532,787	422,009
Thread Cutting and Screw Machines	52,707	12,672	526,027	461,718
Punching and Shearing Machines	20,069	6,961	96,174	168,629
Power Hammers	27,813	12,821	235,990	144,634
Rolling Machines	.....	9,346	100,875	28,195
Sharpening and Grinding Machines	124,123	130,381	1,619,879	970,979
Other Metal Working Machinery and Parts of	339,077	392,634	3,837,659	4,322,608
Textile Machinery	670,971	817,669	7,962,321	8,542,444
Sewing Machines	584,882	794,206	7,752,128	8,202,885
Shoe Machinery	153,962	93,618	1,335,813	1,231,993
Flour-Mill and Gristmill Machinery	53,234	52,785	727,665	1,067,192
Sugar-mill Machinery	904,385	817,970	8,040,844	5,540,701
Paper and Pulp Mill Machinery	164,049	119,148	1,952,609	1,895,121
Sawmill Machinery	95,302	33,079	573,147	577,702
Other Woodworking Machinery	110,063	113,041	1,198,076	1,020,501
Refrigerating and Ice Making Machinery	120,284	175,020	2,001,504	2,091,377
Air Compressors	198,439	248,113	2,700,166	2,335,358
Typewriters	1,148,830	1,266,886	13,848,244	12,526,813
Power Laundry Machinery	83,204	99,350	927,274	922,421
Typesetting Machines	561,713	398,839	3,286,393	3,469,149
Printing Presses	636,506	460,720	4,229,487	4,195,978
Agricultural Machinery and Implements	4,537,930	3,807,223	56,431,156	46,973,191
All Other Machinery and Parts	9,294,028	9,156,352	114,660,549	93,402,645
Total	$25,502,430	$25,244,428	$294,240,679	$264,501,390

Combination Surface and Disk Grinder with Hydraulic Table Feed

Employment of an Oilgear hydraulic table feed, providing flexible control of table travel, is an outstanding feature of the No. 1 surface grinder recently brought out by the Gardner Machine Co., Beloit, Wis.

The machine as shown in the illustration is equipped also for disk grinding, the left-hand or far end of the machine being provided with a steel disk wheel and universal lever-feed table, for various work usually done on a single-end disk grinder. The right-hand end of the machine is for large work requiring heavy cuts, and is also effectively used on long parts which cannot be handled to advantage on a disk grinder. Unusual versatility and the wide range provided by the combination machine are stressed by the makers.



Flexible Control of Table Travel by Means of the Oilgear Hydraulic Table Feed Is a Feature. The left-hand or far end of the machine, shown in the insert, is provided with a steel dash wheel and universal lever feed table of improved design. The right-hand end is for large work requiring heavy cuts and for long parts which cannot be handled to advantage on a disk grinder

The Oilgear hydraulic feed used in effecting the longitudinal travel of the table permits of close regulation of the rate of table travel to suit the requirements of the particular work being ground. Control of the table travel is by means of a convenient hand lever at the front of the machine. Freedom of wear of parts is an advantage also claimed for the Oilgear mechanism employed, as well as reduction of fatigue of the operator and consequent increase of production, because of the automatic longitudinal movement of the table.

The table is operated by a double-acting hydraulic cylinder mounted on the compound slide and connected directly to the table. Oil pressure is supplied to the cylinder by a variable-delivery Oilgear pump mounted inside the base, and driven by belt from the machine spindle. A flexible hose connects the cylinder and pump, the latter being entirely inclosed and self contained, with the oil reservoir built into the pump. The pump control shaft extends through the base to the front of the machine and is operated by hand lever, adjustable stops being provided on the control lever for adjusting the speed of the table. The pump is of the five-cylinder radial type and speed changes are obtained by varying the eccentricity and thereby the delivery of the pump. Heavy bearing loads are taken on ball and roller bearings. All mechanism runs in oil.

The surface table is a one-piece casting and is provided with three Tee slots. The top of the table has a drain for returning coolant to a tank at the rear of the machine. The table is mounted on a compound slide. The longitudinal movement is controlled by means of stops placed in a Tee slot on the side of the table, which come in contact with the pilot valve, reversing the table travel.

The feed of the work to the grinding wheel is obtained through a micrometer screw, which is hand operated. The knee supporting the compound slide is adjusted vertically by means of a large screw operated through bevel gears by means of a large handwheel. The bottom of the base of the machine forms a basin to catch the coolant used in wet grinding.

The universal lever feed table provided for the left-hand or rear end of the machine is said to be of improved construction, being unusually massive and having large rockerboxes to assure ample support. The lever ratio is 12 to 1. The main spindle of the machine is mounted in radial and thrust ball bearings, which are inclosed in dust-proof housings. In the motor-driven unit the motor shaft serves as the machine spindle. The right-hand end of the machine carries an 18-in. abrasive ring wheel and the left-hand end carries a 23-in. steel disk wheel.

Proposed Reduction of Rates

WASHINGTON, Jan. 5.—In a report by Attorney-Examiner Arthur R. Mackley, last week, he recommended that car load rates on plates, shapes, bars, and rods from the Pittsburgh district to Canton and Massillon, Ohio, be reduced to 17.5c. per 100 lb. from the present fifth class rate of 20c. The recommendation was made in connection with a complaint of the Canton Bridge Co., which would be given an award of reparation, according to the report, and other manufacturers who appeared in the case as interveners. The 17.5c. rate suggested is the same as that which is to be put into effect as a result of the decision of the commission in the American Shipbuilding Co. case. This rate was arrived at when the commission held that the old rate was unreasonable to the extent that it exceeded the aggregates of intermediate rates over the routes of movement. The Shipbuilding case, like the present one, involved the long and short haul issue. Also in the so-called Iron and Steel Articles case, decided at the same time as the Shipbuilding case was decided, the commission found justified, in the territory between Pittsburgh and points west, including Youngstown, Alliance, Canton, Massillon and Cleveland, increases in short-haul iron and steel rates not to exceed 15.8 per cent subject to a maximum increased rate of 15.5c.

A new model of revolving car dumper designed to handle standard open top railroad cars up to 50 ft. in length and 70-ton capacity has been brought out by the Wellman-Seaver-Morgan Co., Cleveland. The general features of this machine are similar to the heavy type of car dumper designed for handling cars up to 20-ton capacity brought out by this company several months ago, but is lighter in construction. The most important differences in design are that the new dumper has two clamps instead of a multiple clamping system and is mounted on four wheels instead of eight. The driving mechanism is somewhat lighter and a 40-hp. motor furnishes sufficient power to operate the dumper.

New Resistor Unit for Electric Heating

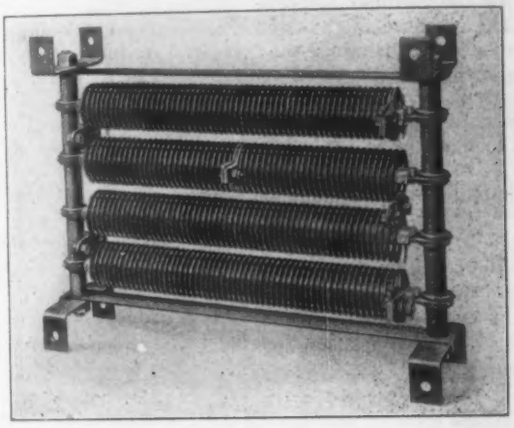
A ribbon-type resistor, wound on edge, and intended for service where cast-iron grids would otherwise be employed, has recently been developed by the Monitor Controller Co., Baltimore.

The resistor unit, known as Edgewound, consists of a high-resistance alloy ribbon wound on edge in helical form and mounted on a steel-reinforced porcelain support which passes through the entire length of the unit, supporting and separating every convolution at two opposite points. This method of construction is intended to relieve the resistor ribbon from mechanical strain and to permit of thorough ventilation. The ribbon is said to operate at any temperature up to red heat without sagging or in any way injuring the resistor as a whole.

A system of terminals and taps permits of connecting a unit into a circuit, and to be interconnected with other units. Two simple forms of clamps provide these facilities. One is a bridging clamp which makes solid mechanical connection between two adjacent units and which serves as a terminal when the units are connected in parallel and also as an end tap, if desired, when the units are connected in series. The other may be used for either of two purposes, as a terminal clamp or as a tap. The taps may be placed at any point along the resistor and may be changed conveniently. This permits of accurate adjustment of the resistance steps.

The resistors are made in standard units and mounted in frames so that they can be applied in a manner similar to cast-iron grids. The standard section will contain either four or six units mounted horizontally and connected either in series or in parallel. Any number of these sections may be mounted one on top of another.

The porcelain used in the resistor being steel supported is claimed to be practically unbreakable. Shattering any section of the porcelain itself has no effect upon the operation of the resistor, as the resistive conductor requires only a fraction of the support it actually receives. The resistive conductor having a negligible temperature coefficient of resistivity, the resistance remains the same, whether hot or cold, and it is claimed there is no tendency toward heat localization.



Bank of Four Edgewound Resistor Units Connected in Series With One Intermediate Tap on Second Unit

Dumper for Special Form of Car

The accompanying illustration shows a car dumper recently brought out by the Atlas Car & Mfg. Co., Cleveland. It is for use in dumping the company's special form of car, which is said to be particularly adapted to heavy service in quarrying, and other heavy-duty applications in which steam shovels are employed to load the cars.

The car was developed by the company several years ago. It is made up of a truck or frame which is mounted in the usual way on wheels and axles equipped with heavy journal bearings and spring pedestals to protect the equipment. The body or hopper of the car, which is a separate unit of heavy construction, rests directly on the framework when carrying the load. When the car reaches the dumping point the hopper is tilted, the contents sliding out into the chute to the crusher. The absence of moving parts or mechanisms is a feature emphasized. The hopper is simply dropped in place and held automatically by blocking. For tilting a hoist is used, one hoisting rig being provided for a large number of cars. The simplicity of this arrangement is stressed as eliminating the annoyance and cost of maintaining a dumping mechanism on all the cars. Another advantage claimed is that when any of the hoppers or bodies are damaged by the falling of large rocks, they may be easily replaced with a spare hopper, while the damaged one is being repaired.

The Operator Has Complete Control of the Hopper or Car Body at all Times. The car is designed for heavy-duty mining and quarrying operations

The type of car described has been adapted to heavy service on iron ranges and the special dumper illustrated has been developed to handle the large capacity car. A feature of the dumper is that the operator has control of the hopper at all times. The hoist can be stopped at any point and if necessary the hopper can be shaken to loosen material that may stick to the hopper. In operating the hoist the loaded car is brought into position in front of the hoist, after which the operator hoists the two trolleys to which the dumping arms are connected. The dumping arms automatically lock to trunnions provided on the car body or hopper. As the trolleys are hoisted the body of the car is forced up and over to the dumping position, and the reversal of these operations replaces the body on the car.

Carnegie Sill Section for Railroad Cars

In 1922 the car construction committee of the American Railway Association proposed the adoption of a center sill section to be the standard for many forms of railroad cars. The new section is the subject of a pamphlet issued by the Carnegie Steel Co., Pittsburgh, containing cross section drawings of the design together with the tables of dimensions.

Cincinnati Chapter American Society for Steel Treating has completed arrangements for the regional meeting of the society to be held at Cincinnati, Jan. 15 and 16. It is expected that over 300 delegates will be in attendance from ten chapters in the Middle West. W. S. Bidle, president, will preside at the meetings. J. Culver Hartzell, chairman of the Cincinnati chapter, has charge of arrangements for the meeting, being assisted by a number of sub-committees.

COPPER IN 1924

Production Breaks Peace-Time Records—Smelter Output More Than a Billion and a Half Pounds

The production of copper in 1924 broke all previous records except those for the years during the World War, according to a statement issued by the Department of the Interior. The output from domestic sources during the last year, as determined by the Geological Survey from reports of the smelters showing actual production for 11 months and the estimated production in December, was 1,628,000,000 lb., compared with 1,435,000,000 lb. in 1923, an increase of more than 13 per cent over that year, which itself was the highest of record with the exception of the war years. The smelter production of copper in December, as estimated by the producing companies, was 137,000,000 lb., a little higher than the average monthly production for the year, or at the rate of about 1,644,000,000 lb. a year.

The production of new refined copper from domestic sources, determined similarly, was about 1,764,000,000 lb., compared with 1,464,000,000 lb. in 1923. In 1924 the production of new refined copper from domestic and foreign sources amounted to about 2,293,000,000 lb., compared with 1,980,000,000 lb. in 1923. In addition to the output of new refined copper about 136,000,000 lb. of secondary copper was produced at the refineries, compared with 131,000,000 lb. in 1923, so that the total output of refined copper was about 2,429,000,000 lb. in 1924 and 2,111,000,000 lb. in 1923.

Imports and Exports and Stocks

The imports of unmanufactured copper during the first 11 months of 1924, according to the Bureau of Foreign and Domestic Commerce, amounted to 706,127,251 lb., compared with 676,473,338 lb. during the entire year 1923 and 541,013,220 lb. in 1922. The imports of copper in the first 11 months of 1924 were thus higher than during any previous calendar year.

The exports of copper also increased substantially during the first 11 months of 1924 and were higher than those recorded for any other calendar year except 1917. The exports in December will probably not be large enough to make the figures for 1924 surpass those for 1917. The exports for the first 11 months of 1924 amounted to 1,018,426,271 lb., compared with 829,314,002 lb. during the entire year 1923.

The stocks of refined copper in the hands of domestic refineries on Dec. 31, 1924, as estimated by the refining companies, were about 247,000,000 lb., compared with 264,000,000 lb. on Dec. 31, 1923. The stocks of blister copper and material in process of refining, in the hands of the smelters, in transit to refineries, and at refineries on Dec. 31, 1924, were estimated by smelting and refining companies at about 405,000,000 lb., compared with 432,000,000 lb. on Dec. 31, 1923.

PRESIDENT GRACE HOPEFUL

Looks for Good Business with More Attention to Human Side of Industry

Increasing interest on the part of workers in their jobs, with lower unit costs of production and lower costs of distribution, afford every reason to expect that sound business during the coming year will be profitable, in the opinion of Eugene G. Grace, president Bethlehem Steel Corporation.

"In the program of development competition will force attention to every detail of management," says Mr. Grace, "but I feel that more and more attention will be paid to that phase of management which deals with the human side of industry. Employers realize that without the confidence of their employees their companies cannot make the progress they desire. Employers, in the future, will take greater pains to see that their men are receiving proper treatment as well as to see that there is made known to the men a proper understanding of the principles of business which concern the men in their relations with their employers.

"Furthermore, competition in this country and abroad will encourage work toward greater production from existing facilities and existing personnel, with the resulting lower unit costs of production. There is room for great development in the science of distribution of almost every commodity. One of the great problems of civilization is to make men happy. The problem of the distribution of the results of science and of human effort, the problem of distributing nature's bounty to all men in all countries, to the ultimate increase of their happiness, is the supreme problem that presents itself to the present and coming generation of mankind."

Changes in the Organization of the Vanadium Corporation

As a result of the recent acquisition by the Vanadium Corporation of America of the United States Ferro Alloys Corporation, some changes in the organization of the two companies have been made.

Dr. B. D. Saklatwalla has been made vice-president of the Vanadium Corporation of America and vice-president of the United States Ferro Alloys Corporation, effective Jan. 1, 1925. Dr. Saklatwalla has been general superintendent of the reduction plant of the Vanadium Corporation of America at Bridgeville since its organization in 1919, and prior to that was general superintendent of the same plant for the American Vanadium Co. He has also been a director of the corporation since 1921. He will maintain his headquarters at Bridgeville, near Pittsburgh, inasmuch as this is a central point between the general offices in New York and the plant of the United States Ferro Alloys Corporation in Buffalo.

N. Petinot, formerly general manager of sales for the United States Ferro Alloys Corporation, becomes, on Jan. 1, general manager of sales of both the Vanadium Corporation of America and the United States Ferro Alloys Corporation. His headquarters will be in the general offices of the allied companies at 120 Broadway, New York.

Robert Turnbull remains with the consolidated companies as general manager of United States Ferro Alloys Corporation interests in the Niagara Falls district.

Gustav Laub, who has been with the Vanadium Corporation of America and with the American Vanadium Co. before the corporation was formed, has been appointed assistant secretary of both the Vanadium Corporation of America and the United States Ferro Alloys Corporation.

Building Plans for Hudson Valley Blast Furnace at Troy, N. Y., Changed

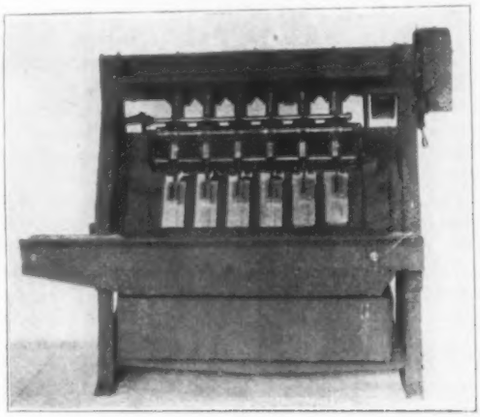
Construction plans of the Hudson Valley Coke & Products Corporation, Troy, N. Y., have been somewhat changed, calling for an expenditure of $6,000,000, instead of $5,000,000 as originally planned. The capacity of the blast furnace will be increased from 300 to 450 tons per day, and the number of coke ovens from 44 to 55. Foundations for the ovens have been completed and construction of the ovens started. Construction and remodeling schedules, heretofore somewhat backward, have been caught up with, and the company's blast furnace, it is expected, will be blown in next summer.

The company has contracted with the Troy Gas Co., Troy; the Municipal Gas Co., Albany, and the Adirondack Power & Light Corporation to supply gas, beginning in October, next. The present plans are that coke produced, with the exception of that used for blast furnace purposes, will be marketed in the Troy district for domestic consumption.

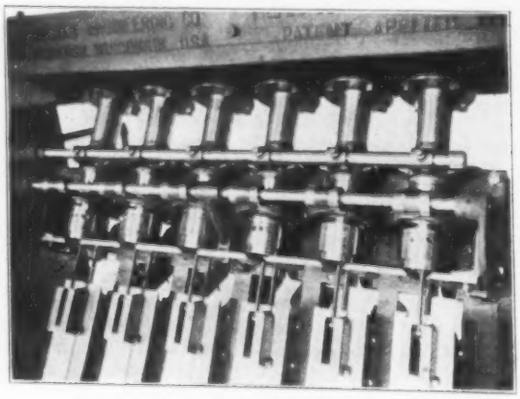
Six-Spindle Tilted Bolt Threader

A six-spindle machine for the rapid threading of bolts up to ⅝ in. in diameter, from 1 to 12 in. long and having square, hexagon or clipped heads, or square or oval shanks, is shown in the accompanying illustration. It was developed by the Holmes Engineering Co., Oskosh, Wis., and has been in use in the plant of the Graham Bolt & Nut Co., Pittsburgh, which assisted the Holmes company in completing its development.

Except for loading and knocking out the bolts all operations are automatic, including conveying of the bolts into skip boxes. Threads are cut on the smaller sizes of bolts at the rate of 60 per min., a production of



Bolts Up to ⅝ In. in Diameter and from 1 to 12 In. Long May Be Threaded Rapidly. All operations, excepting loading and knocking out, are automatic. The arrangement of the spindles, which are tilted, may be noted from view below



50 per min. being claimed on the larger bolts. Slower feeds, producing 30 or 40 bolts a minute, are instantly available, and several changes of cutting speeds are provided for bolts of various sizes.

Spindles Mounted Obliquely

The spindles are mounted at an angle of 30 deg. from vertical to permit the use of self-clamping slots, to provide ample lubrication of working parts, free washing away of chips and to facilitate ejection of threaded bolts into the conveyor. Cutting lubricant flows through the hollow spindle at the rate of 60 quarts a minute. Twelve synchronized cams are employed in the machine, six to start the bolts and six to close the die heads. As the cams act only against counterweights, an imperfectly entered bolt cannot break the chasers nor can a clogged die head be strained. The lower set of counterweights start the bolts and the upper set closes the die heads.

A complete change of set-up of the machine is said to be made in 10 min. and if the set-up is merely from length to length, the change can be made in a minute on all six spindles. The H&G type of self-opening die heads of the Eastern Machine Screw Corporation, New Haven, are employed on the machine.

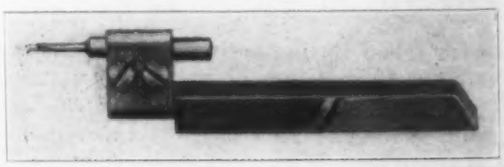
Survey of Minerals of Pacific Coast

SAN FRANCISCO, Dec. 31.—The Southern Pacific Railroad Co. has established an Industrial Minerals Service Bureau under the supervision of the geological department of the railroad. This is one of several recent developments of the economic survey of industrial minerals of the Pacific Coast, in which the industrial department of the San Francisco Chamber of Commerce is cooperating with Curtis M. Redfern, assistant to the consulting geologist of the Southern Pacific, and B. F. Hews, manager of the department of mines and mining of the Sacramento Chamber of Commerce and secretary of the Pacific Coast Chamber of Mines and Minerals.

The preliminary statistical report of the State Mining Bureau for 1923 shows that there were 54 different mineral substances in the 58 counties of California. The value of the total mineral production was $344,024,678, an increase of $96,840,852 over the total for 1922. The production of iron ore and lead, classified together, amounted to $695,416.

Bench Lathe Boring Tool Holder

Adjustability and rigidity are features claimed for the bench lathe boring tool holder illustrated, which is intended for precision boring operations. The tool, which has been placed on the market by the J. F. Smith Tool Co., Dayton, Ohio, may be adjusted to various heights, and is made to hold ¼-in. bars. It is claimed that the operator can keep his bar on center and



Bench Lathe Boring Tool Holder. It is made to hold ¼ in. bars and may be adjusted to different heights

parallel with the hole being bored, which permits the use of a larger diameter boring bar than with a tool holder without the adjustable feature.

An offset is turned on the end of the shank of the tool, the offset being knurled with a straight knurl and having a large fillet. The clamp which fits over the offset and which also holds the boring tool, is countersunk on the shank side to clear the fillet. This clamp is made in two parts, with screws binding in the center. When tightened these screws draw the clamp down into the straight knurl on the shank, preventing slipping, also binding the boring tool. The length of the tool is 4 in. and the shank is 5/16 x ½ in.

Base Prices for Hot-Rolled Flats

A number of makers of hot-rolled flats have adopted the following schedule of base prices for material of less than 1 in. in width:

Gage	Widths					
	½ in.	⅝ in.	¾ in.	⅞ in.	1 in.	1¼ in.
½ in. to No. 12 inc..	2.75	2.75	2.75	2.75	2.75	2.75
No. 13 to No. 16 inc.	2.75	2.75	2.75	2.75	2.75	2.90
Nos. 17 and 18.....	2.90	2.90	2.90	2.90	3.05	3.15
Nos. 19 and 20.....	2.90	2.90	3.00	3.25	3.35	3.40
No. 21	2.90	3.10	3.10	3.25	3.50	3.75
No. 22	2.90	3.10	3.10	3.25	...	...

All prices are f.o.b. Pittsburgh, in car lots, subject to standard extras for size and gage.

The Alabama Lime & Stone Corporation, Birmingham, Ala., has been organized with $2,000,000 capitalization and the plants and properties of the O'Neal Lime Co., taken over, the Schaffer Engineering Co., of Pittsburgh, being given the contract to build extensive lime works together with a by-products of lime plant on the properties of the company, in Shelby county, 30 miles south of Birmingham. Machinery has been purchased and the work on the new industry will start in the next two to four weeks and will be completed within six months.

Basic Production About on 1919 Level

November Shows a Drop After Successive Increases Since July—All Figures Are Lower Than Last Spring

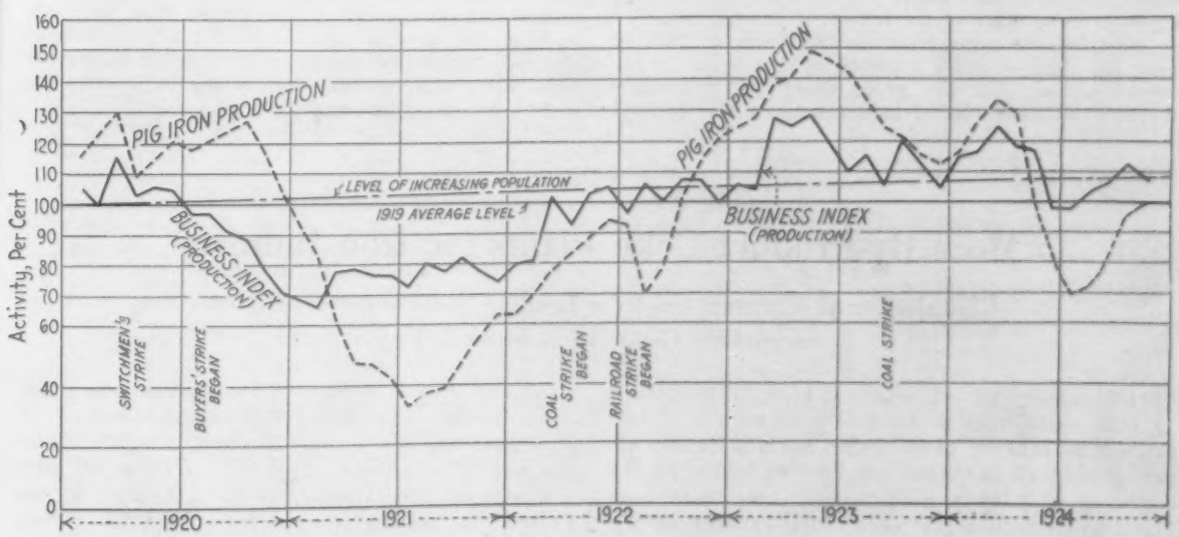
BY SIDNEY G. KOON

WITH preliminary estimates needed in some of the items, the volume of production in ten basic industries in the United States shows November at approximately 7 per cent above the average month of 1919, or almost precisely equal to 1919 if account be taken of the increase in population over the past five and one-half years. November is somewhat below October, mainly because of smaller production of foods, textiles, fuels and particularly automobiles. Building construction advanced during the month, while lumber, steel ingots, non-ferrous metals, newsprint paper and leather remained almost stationary. November was a shorter month and had an extra Sunday, thus reducing working time from October by two days. As no correction is made in our estimates for either length of month or any seasonal influence, this shortness of month was accountable in large measure for the drop from 13 per cent above 1919 in October to only 6 per cent in November.

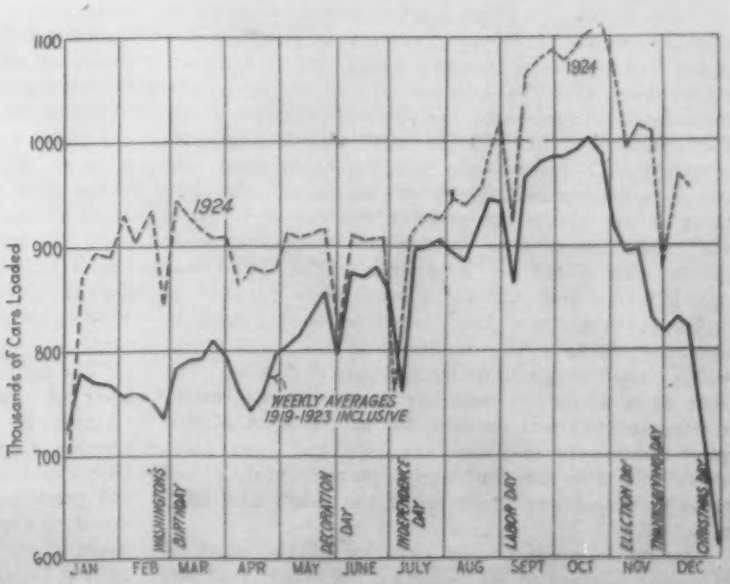
Almost every item has shown a substantial increase since midsummer. Exceptions are foods and vehicles, which have declined, and fuel, which stands exactly at the July and August level. Building construction, textile production, steel ingots and newsprint paper show large increases, while more moderate increases are given by non-ferrous metals, lumber and leather.

Purchasing Power at Home Relied on to Absorb Large Output of Industries

High wages and practically full employment in nearly all major industries provide good purchasing power within the American nation. Depreciated exchange abroad, together with uncertain economic con-



PRODUCTIVE Activity in the United States during the Past Year Has Been Only Slightly Above the 1919 Level as Amended for Increasing Population. As always, the curve of activity of such a basic commodity as pig iron shows fluctuations much greater than with manufactured products in general. It is noteworthy that during the conditions of relative boom, from the spring of 1923 to the spring of 1924, the pig iron curve was continuously above the curve of general production and that during the period of comparative quiet in the summer just past, the pig iron curve was far below the curve of general production



Weekly Car Loadings Continuing at an Exceptionally High Rate Through the Fall Have Made Two New Records and Are Constantly Above the Five-Year Post-War Average. They form one indication of the dimensions of our present activity

ditions in practically all European markets and some of those to the south and west of us, make the immediate future of foreign outlets for our products somewhat problematical. It is true that we have been sending abroad very heavy quantities of materials and that the proportions of manufactured goods, when considered over the long range, have been increasing and increasing sharply. Nevertheless, reliance must be placed by the American manufacturer mainly upon his own countrymen to absorb the output of his factories.

Production only is the basis of the curve. It is not predicated in any way upon dollar values and hence is free from the effect of price fluctuations. Twenty-one separate items are used in the analysis, in ten groups as follows:

1. Food: beef, flour and sugar.
2. Building construction.
3. Textiles; cotton and wool.
4. Fuels; anthracite and bituminous coal and petroleum.
5. Vehicles; automobiles and trucks.
6. Leather; belting and sole leather.
7. Lumber; yellow pine, Douglas fir and northern hardwood.
8. Steel ingots.
9. Non-ferrous metals; copper, lead and zinc.
10. Newsprint paper.

All figures are expressed in their relation to the average monthly output of the calendar year 1919. Each unit entering into the curve represents an element of production, some of which, as in textiles, are measured by the consumption of the mills. The separate items under each group are averaged and then the direct average taken of the ten group figure.

Studying the curve from the beginning of 1920 to near the close of 1924, a period of five years, it becomes evident that the great dearth of production through the latter half of 1920 and all of 1921 has not been made up in subsequent years. As a whole, 1922 showed almost precisely the 1919 level, while both 1923 and 1924 are considerably above that level, only two months of the two years falling below it, but the excess thus registered aggregates less than the previous deficiency.

Considering, however, the increasing population, it appears that 1922 was considerably below the 1919 level over the greater part of the year, when that level is affected by the increased number of mouths to be fed, bodies to be clothed and individuals to be housed. On that same basis, while 1923, except for three months, was above the level for increasing population, 1924 has an average only slightly above that level and has fallen below it in five of the last six months.

Evidently, therefore, we are barely holding our own —always assuming that the requirements of the individual are not advancing. But the history of the past half century shows that this assumption is not tenable. Individual requirements have been advancing at a rapid rate, as is evidenced, among other things, by the greatly increased per capita consumption of our iron and steel production, which we have noted from time to time. Consequently, while apparently we are no worse off with regard to production than in 1919, we cannot be said to be better off.

Therein lies large hope for the coming months. It has been recognized for a long time that the public was not buying more than it needed, in most of the essential purchases, and that in particular retailers and wholesalers were keeping their stocks low and figuring current needs with a sharp pencil. Such being the case, current needs of the next few months or year must necessarily be filled by the production of approximately the same period. This means that, with the stage all set, as it appears to be, for a good flow of business, production is bound to be greater during the next six or eight months than it has been since the short boom of last spring.

More By-Product Coke Plants for Iron Industry

Completion of Clairton Ovens a Leading Achievement—Permanent Idle Capacity at Farrell, Pa.

THE country as of Jan. 1 had 11,954 by-product coke ovens built or building with an annual coal carbonizing capacity of 68,391,366 net tons and an expected yield of 50,838,975 net tons of coke. At the beginning of 1924, revised figures show there were 11,872 ovens with a coal carbonizing capacity of 67,343,950 net tons with an estimated yield of 49,366,250 net tons of coke. Though the net gain in capacity is slight, it would have been necessary to report a loss if the iron and steel industry had failed to maintain its position with the addition of 112 ovens, as the commercal or gas plant installations suffered a net decrease of 30 ovens. In the latter classification, construction of 170 new ovens was begun last year, but 200 were dismantled. There was no definite abandonment of any plants the primary purpose of which is the production of coke for blast furnace use, while the building of 112 new ovens was started. One year ago, 621 iron and steel plant ovens were reported as building; these have been completed and placed in operation, as have 74 commercial or gas plant ovens, which were being built at the beginning of 1924. The year as a whole has been one in which construction started in 1923 was finished, for at the start of this year there were only the 112 iron and steel plant ovens and 270 for commercial plants building and these represent practically all of the year's new business.

Actual by-product coke capacity at the start of this year, arrived at by deducting the capacity of idle plants and of those in course of construction, was 11,206 ovens, capable of producing 47,859,725 net tons.

A year ago, the number of ovens in active operation was 11,033 with a coke capacity of 43,746,000 tons.

Listed as idle capacity are the 212 ovens at the Farrell, Pa., plant of the Carnegie Steel Co. These ovens probably will never again be operated, as the stills have been moved away and now are used for tar storage for the open-hearth furnaces at that plant. Ovens of the Dunbar Corporation, a reorganization of the American Manganese Mfg. Co., Dunbar, Pa., have been idle during most of the past year, but plans are under way to start them at an early date. There is no definite information as to whether the 24 ovens of the Penn Iron & Coal Co., Dover, Ohio, or the 120 ovens of the Allegheny By-Products Coke Co., Glassport, Pa., will ever again be operated. Both of these plants have been idle for a long time. Definite abandonment of capacity includes 160 ovens of the By-Products Coke Corporation, South Chicago, and 40 ovens of the Solvay Process Co., Syracuse, N. Y.

The largest single by-product plant in the country and, for that matter, in the world, is that of the Carnegie Steel Co., at Clairton, Pa., with 1134 ovens, capable of producing 6,350,000 tons of coke annually. This capacity was attained through the completion of 366 ovens in the past year and enough coke is produced to supply the requirements of the 27 blast furnaces of the Carnegie Steel Co., which can be served by the Union Railroad, the company's own railroad.

IRON AND STEEL COMPANY PLANTS

Name	Location	No. of Ovens	Kind of Oven	Annual Capacity, Net Tons: Coal	Coke
*Dunbar Corporation	Dunbar, Pa.	110	Semet-Solvay	240,000	173,000
American Steel & Wire Co.	Cleveland	180	Koppers	1,080,000	750,000
Ashland By-Product Coke Co.	Ashland, Ky.	108	Semet-Solvay	864,000	648,000
Bethlehem Steel Co.	Sparrows Point, Md.	360	Koppers	2,190,000	1,576,000
	Lackawanna, N. Y.	282	Rothberg	663,800	491,700
		60	Semet-Solvay		
		114	Koppers-Becker	1,200,000	900,000
	Bethlehem, Pa.	424	Koppers	2,400,000	1,920,000
	Lebanon, Pa.	90	Semet-Solvay	640,000	465,000
	Steelton, Pa.	120	Semet-Solvay	876,000	621,000
		60	Koppers		
	Johnstown, Pa.	210	United-Otto	1,829,000	1,226,000
	Franklin	92	Koppers		
		190	Cambria-Belgian		
	Rosedale	120	Cambria-Belgian		
		88	Semet-Solvay	1,278,000	895,000
Carnegie Steel Co.	Clairton, Pa.	768	Koppers	8,085,000	6,350,000
		366	Koppers-Becker		
	*Farrell, Pa.	212	United-Otto	830,000	531,000
Central Iron & Coal Co.	Holt, Ala.	60	Semet-Solvay	290,000	220,000
Colorado, Fuel & Iron Co.	Minnequa, Colo.	120	Koppers	720,000	550,000
Columbia Steel Corporation	Provo, Utah	33	Koppers-Becker	365,000	263,750
Ford Motor Co.	Dearborn, Mich.	120	Semet-Solvay	864,000	622,000
Gulf States Steel Co.	Alabama City, Ala.	37	Koppers	237,000	175,000
Hanna-Union Coke Corporation	Buffalo	150	Koppers	1,000,000	690,000
Hudson Valley Coke & Products Corporation	Troy, N. Y.	55	Foundation	400,000	300,000
Illinois Steel Co.	Gary, Ind.	700	Koppers	4,400,000	3,480,000
	Joliet, Ill.	280	Koppers	1,500,000	1,200,000
Inland Steel Co.	Indiana Harbor, Ind.	130	Koppers	890,000	666,000
International Harvester Co.	South Chicago	88	Wilputte	578,000	376,000
Ironton By-Products Coke Co.	Ironton, Ohio	60	Semet-Solvay	432,000	311,000
Jones & Laughlin Steel Corporation	Pittsburgh	300	Koppers	2,000,000	1,300,000
McKinney Steel Co.	Cleveland	204	Koppers	1,300,000	910,000
Minnesota Steel Co.	Duluth, Minn.	90	Koppers	600,000	450,000
National Tube Co.	Lorain, Ohio	208	Koppers	1,350,000	945,000
	Benwood, W. Va.	120	Semet-Solvay	270,000	189,000
Otis Steel Co.	Cleveland	100	Semet-Solvay	475,000	356,250
*Penn Iron & Coal Co.	Dover, Ohio	24	Roberts	144,000	100,000
Pittsburgh Crucible Steel Co.	Midland, Pa.	100	Koppers	667,000	435,000
Portsmouth By-Product Coke Co.	Portsmouth, Ohio	108	Semet-Solvay	770,000	559,000
Rainey-Wood Coke Co.	Swedeland, Pa.	110	Koppers	800,000	600,000
Republic Iron & Steel Co.	Youngstown, Ohio	143	Koppers	1,620,000	1,194,000
		61	Koppers-Becker		
	Birmingham, Ala.	†57	Koppers-Becker	600,000	450,000
St. Louis Coke & Iron Co.	Granite City, Ill.	80	Roberts	400,000	250,000
Semet-Solvay Co.	Ensley, Ala.	240	Semet-Solvay	760,000	520,000
Semet-Solvay Co.	Buffalo	60	Semet-Solvay	474,500	355,875
Sloss-Sheffield Coal & Iron Co.	Birmingham, Ala.	120	Semet-Solvay	864,000	622,000
Tennessee Coal, Iron & Railroad Co.	Fairfield, Ala.	434	Koppers	2,560,000	1,920,000
Toledo Furnace Co.	Toledo, Ohio	94	Koppers	560,000	408,800
Trumbull-Cliffs Furnace Co.	Warren, Ohio	47	Koppers-Becker	490,000	367,500
United Furnace Co.	Canton, Ohio	47	Koppers	280,000	204,400
Weirton Steel Co.	Weirton, W. Va.	37	Koppers	365,000	355,000
Wheeling Steel Corporation	Follansbee, W. Va.	94	Koppers	610,000	445,000
Woodward Iron Co.	Woodward, Ala.	230	Koppers	1,000,000	700,000
		60	Wilputte	330,000	231,000
Youngstown Sheet & Tube Co.	Youngstown	390	Koppers	2,570,000	1,804,000
	Indiana Harbor, Ind.	120	Semet-Solvay	876,000	656,000
	Mayville, Wis.	108	United-Otto	450,000	384,000
Zenith Furnace Co.	West Duluth, Minn.	65	United-Otto	160,000	112,000
	Total	9,578		57,197,300	42,234,275

COMMERCIAL OR GAS PLANTS

Alabama By-Products Corporation	Birmingham, Ala.	100	†25 Koppers	669,000	469,000
*Allegheny By-Products Coke Co.	Glassport, Pa.	120	United-Otto	350,000	182,000
Battle Creek Gas Co.	Battle Creek, Mich.	11	Koppers-Becker	54,750	41,100
By-Products Coke Corporation	South Chicago	220	120 Semet-Solvay	700,000	525,000
			†100 Koppers-Becker	1,000,000	700,000
Camden Coke Co.	Camden, N. J.	37	Koppers	230,000	164,000
Central Indiana Gas Co.	Muncie, Ind.	22	Klonne	40,000	28,000
Chattanooga Gas & Coke Co.	Alton Park, Tenn.	24	Semet-Solvay	175,000	125,000
Chicago By-Products Coke Co.	Chicago	105	Koppers	722,000	482,000
Citizens Gas Co.	Langsdale, Ind.	41	Semet-Solvay	299,000	225,000
Citizens Gas Co.	Prospect, Ind.	140	100 United-Otto	567,000	409,400
			40 Wilputte		
Coal Products Mfg. Co.	Joliet, Ill.	53	35 Koppers	340,000	238,000
			18 Wilputte		
Consumers Power Co.	Zilwaukee, Mich.	19	Koppers-Becker	73,000	54,750
	Jackson, Mich.	15	†15 Koppers-Becker	50,000	35,000
Diamond Alkali Co.	Alkali, Ohio	23	Koppers-Becker	200,000	150,000
Domestic Coke Corporation	Fairmont, W. Va.	60	Koppers	400,000	260,000
Empire Coke Co.	Geneva, N. Y.	46	Semet-Solvay	146,000	102,000
Indiana Gas & Coke Co.	Terre Haute, Ind.	60	30 Gas Machine	292,000	205,000
			30 Koppers		
Laclede Gas Light Co.	St. Louis	64	56 Koppers	320,000	240,000
			8 Piette	40,000	26,000
Linton Gas Co.	Linton, Ind.	3	Gas Machine	15,000	9,300
Lynn Gas & Electric Co.	Lynn, Mass.	11	†11 Koppers-Becker	54,000	38,000
Michigan Alkali Co.	Wyandotte, Mich.	54	United-Otto	169,000	118,400
Milwaukee Coke & Gas Co.	Milwaukee, Wis.	150	50 Semet-Solvay	275,000	192,000
			100 Koppers	667,000	467,000
Minnesota By-Products Coke Co.	St. Paul, Minn.	65	Koppers	400,000	300,000
New England Fuel & Trans. Co.	Everett, Mass.	400	United-Otto	650,000	455,000
North Shore Gas Co.	Waukegan, Ill.	13	Semet-Solvay	55,000	38,500
Northern Indiana Gas & Elec. Co.	Fort Wayne, Ind.	19	†19 Koppers-Becker	94,316	66,000
Philadelphia Suburban Gas & Elec. Co.	Chester, Pa.	40	Semet-Solvay	125,000	87,500
Providence Gas Co.	Sassafras Point, R. I.	40	Koppers	240,000	165,000
Seaboard By-Products Coke Co.	Kearney, N. J.	165	Koppers	1,200,000	900,000
Seattle Lighting Co.	Seattle, Wash.	20	Klonne	24,000	18,000
Semet-Solvay Co.	Detroit	215	Semet-Solvay	1,343,000	1,009,000
Utica Gas & Electric Co.	Utica, N. Y.	21	Koppers	105,000	78,750
	Total	2,376		11,194,066	8,604,700
	Grand total	11,954		68,391,366	50,838,975

*Not in operation. †Building.

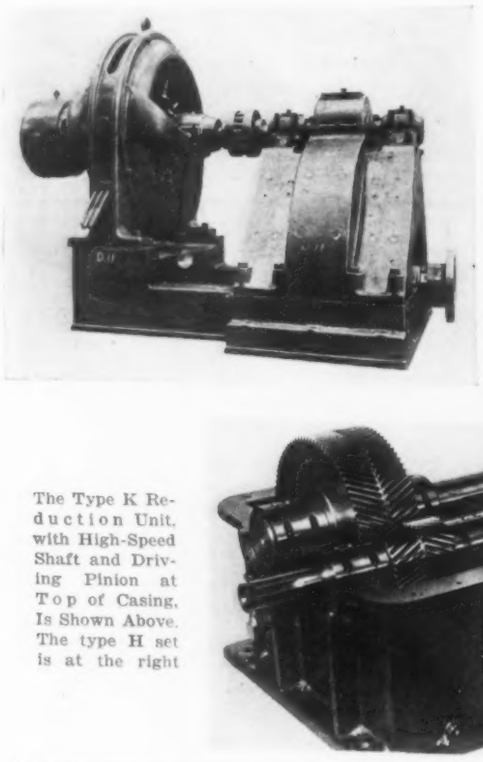
These embrace the seven Carrie furnaces at Rankin, Pa., the three stacks at Clairton, Pa., six at Duquesne, Pa., and 11 at the Edgar Thomson works, Braddock, Pa. When any of these furnaces are down, there is coke for shipment to other Carnegie or Steel Corporation furnaces. The plan of disposing of the surplus over the requirements of the furnaces on the Union Railroad is to ship where the freight charge is lowest. Since the Mingo and Bellaire, Ohio, furnaces can be reached by river, they get early consideration owing to the very low haulage charge in the company's own barges and towed by its own steamers. Owing to idle furnaces among the groups mentioned, some coke has been transferred from Clairton to other Steel Corporation units, shipments having recently been going to Donora, Pa., where the American Steel & Wire Co. has two stacks, and to McKeesport, Pa., where there are four furnaces of the National Tube Co. Existence of this great Clairton plant frees the Carnegie Steel Co., so far as its big furnaces in the Pittsburgh district are concerned, from dependence upon beehive oven coke.

It will be noted in the accompanying table that of the total number of ovens built or building 9578 are primarily for making coke for pig iron, as against 2376 the primary purpose of which is gas, and that of the productive coke capacity, about 84 per cent is embraced by the iron and steel company installations.

New Speed Reduction Gear Sets

Two new reduction gear sets recently placed on the market by the Poole Engineering & Machine Co., Baltimore, are illustrated herewith. They are designated as the type H and K, respectively.

The type H reduction gear consists of a double-helical or herringbone gear made from an open-hearth steel forging and a herringbone pinion cut integral with the high-speed shaft, which is of chrome-vanadium steel. Both gear members are hardened and ground and are tested for static balance before being assembled in the gear casing. The latter is of cast iron and is split horizontally, the joints of the casing being ground to assure oil tightness. The bearings, which consist of cast-iron shells lined with babbitt, are removable. They are supported in bosses integral with the top and bottom halves of the casing to assure permanent alinement.



The Type K Reduction Unit, with High-Speed Shaft and Driving Pinion at Top of Casing, Is Shown Above. The type H set is at the right

For low speed drives lubrication is obtained by a combination splash and gravity system. The gear dips into the oil and carries it to a reservoir provided in the upper casing, from which the oil feeds to all bearings and between the gear teeth. For turbine and other high-speed drives, an oil pump and cooler is provided, oil under pressure being pumped to the bearings and between the teeth.

The type K reduction gear unit has a double-helical or herringbone forged steel pinion integral with its shaft, and a cast steel double-helical spur gear. Both gear and pinion have cut stub teeth and are mounted in babbitted bearings of the ring oiling type. The gear and pinion run in oil and are lubricated by the splash system. The high-speed shaft with the driving pinion is mounted at the top of the casing. The driven shaft is directly under the pinion shaft and below or near the floor line, an arrangement stressed as making this unit desirable for machinery used in industries where the line shaft is close to the floor.

Canadian Companies Merged Form Combustion Engineering Corporation

TORONTO, Jan. 3.—The consolidation is announced of Vickers, Ltd., and the Combustion Engineering Corporation into a new company to be known as the Vickers & Combustion Engineering, Ltd., with head office located at Toronto, Ont. While the chief manufacturing plant of the company will be located at Montreal, Que., manufacturing on an extensive scale will also be carried on in Toronto and throughout Ontario. A. J. T. Taylor of Toronto is president of the new company, which will cover the whole range of engineering work in Canada. Vickers, Ltd., of Great Britain has already some $10,000,000 invested in industrial enterprises in this country, and the amalgamation will bring under one control the Vickers Canadian sales agency as well as the business of the Combustion Engineering Corporation, Ltd., the Canadian company whose parent company is the International Combustion Engineering Corporation of New York. The chief articles of equipment to be manufactured in Toronto will be the new steam accumulator, a Swedish invention. Vickers & Combustion Engineering, Ltd., will cover steam power plants including both construction and equipment; hydraulic power plants; large Diesel oil engine installations; mining and general machinery; pulverizing coal equipment; automatic stokers; boilers; turbines, both water and steam; oil engines and prime movers. Two entirely new lines of equipment in Canada will be introduced by this amalgamation, namely the Ruth's steam accumulator, a Swedish invention, and the Nordstrom waste wood refuse dryer. This dryer is of special importance to the paper and sawmill industry, and for that reason is of particular interest in Canada.

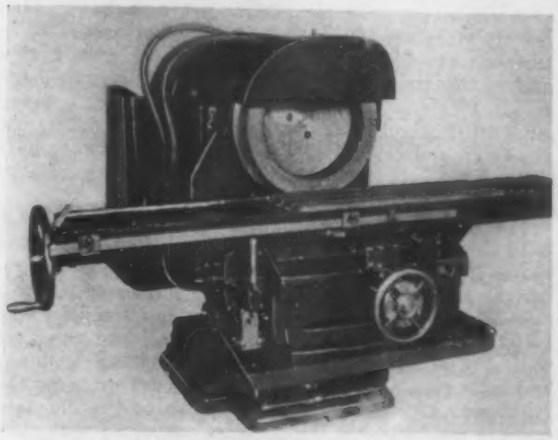
Offices will be located in Montreal, Toronto, Winnipeg and Vancouver. Sir A. Trevor Dawson, vice-president and general manager of Vickers, is chairman of the new company; George A. Learnard, president of the International Combustion Engineering Corporation, is vice-chairman. Officers include: A. J. T. Taylor, president; A. R. Gillham, first vice-president; J. V. Santry, third vice-president; W. Hamilton Munro, director; John Anderson, secretary-treasurer and director, and John Jennings, K. C., of Toronto, solicitor. The personnel of the company will be largely composed of Canadian engineers.

The Trenton works of the American Steel & Wire Co. has been added to the Worcester district under the management of District Manager Clinton S. Marshall.

New Grinder for Finishing Flat Surfaces

The Badger Tool Co., Beloit, Wis., is offering the grinding machine illustrated which is designated as the No. 8 and is intended for finishing flat surfaces.

The left-hand end of the machine, shown in the accompanying illustration, is equipped with a new power operated face grinding table, the top of which is 13 x 72 in. and the finished working top 10 x 32 in. It has longitudinal travel of 34 in. and in-feed of 5 in. The table is driven by nut and screw, the screw being



A New Power-Operated Face Grinding Table Is a Feature. The far end of the machine is equipped with a regular disk grinder type of lever feed table

arranged to reverse automatically when the control handle makes contact with either of the adjustable stops, thereby determining the length of travel. Two different table speeds, 3 ft. per min. and 15 ft. per min. may be provided, as ordered. For the faster speed a rack and pinion is employed instead of the screw to drive the table. The far end of the machine, not shown in the illustration, is equipped with a regular disk grinder type of lever-feed table.

The table may be arranged to operate by hand, using the usual spider handwheel. There is no vertical adjustment to the face grinding table, the work-holding fixtures being built to bring the center of the work being ground up to the center line of the machine spindle. The mechanism of the power-operated table is driven by belt from a countershaft and in the motor-driven units a separate motor is employed.

The machine carries two 20-in. diameter abrasive ring wheels, and a variety of work table combinations may be used. It can be equipped with two face grinding tables or two lever feed tables, or one of each type, either right- or left-hand. Any of these tables may be arranged for hand or power operation. When equipped with two power-operated tables, on many classes of work one operator can take care of both ends of the machine. For wet grinding the machine is equipped with water guards, pans, nozzles, pump and tank. It can also be arranged for dry grinding. The weight of the machine complete, including countershaft, is 5000 lb.

Employee Bonuses and Benefits

Employees of three iron and steel companies in the St. Louis industrial district received $160,000 in Christmas bonuses. The Scullin Steel Co. distributed $90,000 among 1400 employees, the amount being based on salary and length of service. This is the largest bonus ever distributed by the company. The Commonwealth Steel Co. distributed $60,000 among 2300 employees in Granite City and St. Louis, who had been employed for six months or more. The Liberty Foundry Co. distributed $10,000 among its 250 employees.

The Pressed Steel Car Co., McKees Rocks, Pa., has established a group insurance program for the benefit of its employees and those of five subsidiary concerns. Including the workers at Koppel, Pa., protected several months ago by a group policy, the total now amounts to about $3,600,000 on more than 3600 employees.

In addition to life insurance protection, health and accident insurance has been provided. This carries an individual benefit of $10 a week for a maximum period of 26 weeks. The plan is cooperative, employer and employees paying the premiums jointly. Each employee has a $1,000 policy at a cost of 35c. a week.

Christmas presents in the shape of $500 life insurance policies were given to 5901 public utility employees of the North American Light & Power Co. and subsidiaries. The blanket amount of the policies reaches nearly $3,000,000. No hazards of any kind were taken into consideration in the issuance of policies, each receiving his $500 policy regardless of age, physical condition, kind of employment or amount of salary.

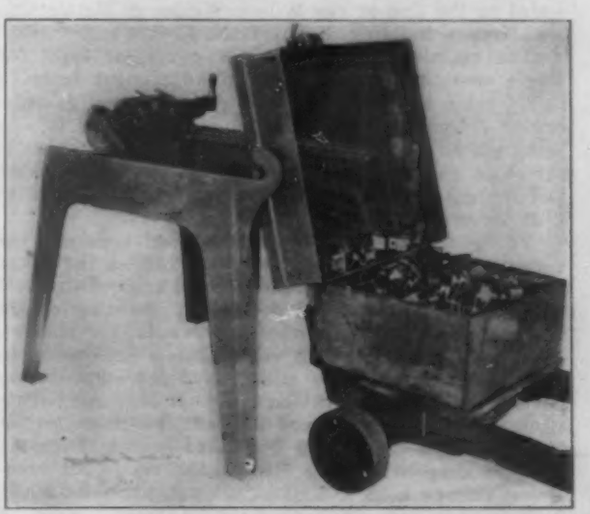
Zinc Mining and Smelting in 1924

Recoverable zinc in ore mined in 1924 is reported by the Geological Survey at about 636,000 net tons, compared with 610,394 tons in 1923. Nearly two-thirds of the total (406,000 tons) came from the Central States, with 105,000 tons (mostly from New Jersey) from the Eastern States and 125,000 tons from the Western States, most of this being from Montana and Colorado.

Primary metallic zinc from domestic ores in 1924 amounted to about 515,000 net tons, with 1000 tons from foreign ores. These figures compare with 508,335 tons and 2099 tons from the two sources in 1923. In addition, there was 35,000 tons of secondary zinc in 1924, compared with 39,434 tons in 1923, thus making a total supply of 551,000 tons of zinc in 1924 against 549,868 tons in 1923. At the end of November, 79,000 retorts out of 134,000 were in operation, compared with 86,670 retorts at the end of 1923.

Machine Separates Chips from Finished Work

A chip separator for use in combination with an oil separator, being employed for separating chips from the finished work after the oil has been extracted from both the work and chips, is here illustrated. A feature is that the machine dumps its load after separating,



After the Chips are Separated the Finished Work Is Dumped as Shown Above

as illustrated. The work box is arranged to hold a full load from the oil separator pan, thereby adopting the machine to continuous operation with the oil separator unit.

The general construction of the machine, which is being marketed by the F. C. Sanford Mfg. Co., Bridgeport, Conn., may be noted from the illustration. The shaker box is 24 in. square and 6 in. deep. The connecting rod to the tight and loose pulleys is provided with a quick-connection bolt to the box, permitting it to be attached to the box quickly after dumping. Three screens having ¼, ⅛ and ⅜-in. mesh respectively are provided, and any or all of the screens may be used as desired. The machine is built of heavy castings, and ample room is provided to accommodate a container for catching the chips.

Vertical Spindle Disk Grinder with Motor in Base

A 42-in. vertical spindle motor-driven grinder with the motor built into the base, eliminating the use of bevel gears, couplings, belts and pulleys, has been added to the line of Charles H. Besly & Co., 124 North Clinton Street, Chicago. The machine illustrated, which is designated as the No. 39, is equipped with a motor-driven pump and piping for wet grinding, and an automatic starter with start and stop push button control.

Vertical-Spindle Direct-Connected Motor-Driven Grinder With Push Button Station Control and Pump and Piping for Wet Grinding

A 20-hp. 575-r.p.m. motor is employed. It has two radial bearings and one thrust bearing, and the ball bearings are mounted in renewable bushings which are fitted into bored holes in the main head castings. The top radial ball bearing is lubricated by means of thin oil forced through a vein which revolves with the spindle in the bearing sleeve. The bottom radial ball bearing and step ball bearing run immersed in oil. Suitable fittings are provided on the outside of the base of the machine for filling or draining oil from the bearing sleeves

Casting the coolant tank integral with the top motor-head casting, completely surrounding the motor and furnishing protection from dirt and water, is a feature stressed. Three cleanout holes are provided in the bottom of the tank. A removable guard ring around the disk wheel and projecting 2 in. above the grinding face, is intended to prevent the work flying off the disk wheel while being ground, and to deflect the grindings and coolant to the tank below. Cross bars are secured to the top of this guard ring to prevent the work revolving with the disk wheel.

The spindle is 3¾ in. in diameter; the wheel collar is 10 in. in diameter and 4½ in. thick. The spindle and bearings may be removed from the machine by removing the disk wheel and four cap screws in the bottom head or foot and also the four cap screws which bolt the top bearing bushing in place. The complete assembly of spindle with bearings, bearing bushings and rotor then may be lifted out. For dry grinding the pump and piping is omitted, and two of the cleanout holes in the bottom of the tank are connected with suitable breeching to the exhaust system or to a motor-driven exhauster. The height of the disk wheel from the floor is 33 in. and the operating floor space required is 8 x 8 ft. The weight is 3140 lb. net.

New Portable Arc Welding Machines

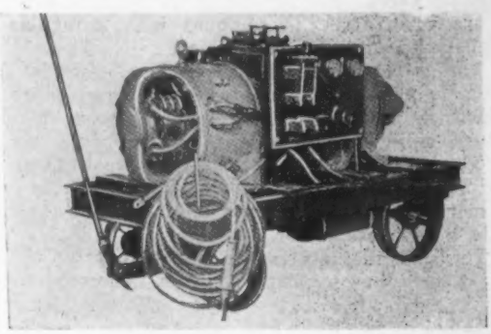
An arc welding machine designated as the type S, and intended for production and repair service in foundries, steel mills, railroad and other shops, has been added to the line of the Wilson Welder & Metals Co., Inc., Wilson Building, Hoboken, N. J.

The machine is of the motor generator type, for single operator, with a range of adjustment from 75 to 250 amp. by small steps. A self-contained gasoline engine driven unit of 75 to 200 amp. capacity is also being placed on the market. The motor driven unit is for rapid work with electrodes up to ¼ in. in diameter and the gasoline driven machine with electrodes up to 3/16 in. in diameter.

The generator is of the field control type and the current can be adjusted to any value within the range of the machine merely by turning the knob of the field rheostat. Increasing and decreasing the open circuit voltage when welding raises and lowers the current, respectively. The current regulation is said to be so close that when welding at full load the current does not rise over 10 per cent on short circuit. As ballast resistors are not employed and the windings are of low resistance, the voltage generated is that of the arc plus the drop in welding leads. The maximum open-circuit voltage is 50, and when welding with short leads, it is said to be approximately 20 volts. Ease of starting and maintaining the arc is attributed to a properly proportioned reactance, which steadies the arc under all welding conditions. The panel of this unit is simple. Upon it is mounted a standard voltmeter and ammeter, a field rheostat with back of panel mounting, and a two-pole double-throw switch to reverse the polarity of the welding leads.

The machines are mounted on a welded channel iron base equipped with roller bearing steel wheels. The portable a.c. unit is 52 in. long, 40 in. high, 30 in. wide over all, and weighs 1260 lb., the same dimensions for the portable d.c. machine, which weighs 1400 lb., being 58x40x30 in. The stationary set is 10 in. less in height and 100 lb. less in weight.

The gasoline engine driven unit is equipped with a four-cylinder 15-hp., 1500 r.p.m. Le Roi gasoline engine. An automobile type carburetor and high-tension magneto are provided, and easy starting, even in cold weather, is a feature emphasized. The gasoline consumption is said to be ½ gal. per hr., welding at 200 amp., and the oil consumption 1/5 pint per hr. The length of this machine is 60 in., the height 56 in., the width 30 in., over all, and the weight 1325 lb. complete. This unit is also mounted on a welded steel base with roller bearing steel wheels.



Portable Arc Welder of Motor-Generator Type, for Single-Operator with Range from 75 to 250 Amp. Current is adjusted by turning the knob of the field rheostat

Steel Spring Output Increased Heavily

From 1921 to 1923 the production of steel springs by establishments engaged primarily in that work almost doubled. In 1923, 114 establishments turned out $59,392,180 of products, compared with $31,750,373 from 126 establishments in 1921. The number of wage earners increased from 5358 to 8634 and their wages from $6,779,358 to $12,782,130. The horsepower used in 1923 was 25,393 and the coal consumed 43,030 net tons. Of the 1923 products motor vehicle springs accounted for more than half, with $29,916,357. Springs for heavy machinery amounted to $9,947,291 and railroad springs to $4,793,175. Twenty-one establishments were located in Pennsylvania, 13 in New York, 11 in California, 9 in Illinois, 8 each in Massachusetts, Michigan and Ohio and the remaining 36 in 16 other States and the District of Columbia.

FEDERATION POLICIES

President Gompers' Successor Ranked as Conservative—May Clash with Radicals

WASHINGTON, Jan. 6.—Policies of the American Federation of Labor will be carried forward actively under its new leadership. Work of "organization and education among the unorganized and the waging in a most vigorous fashion for a speedy realization and enjoyment on the part of working men and women of all the rights and privileges to which they are justly entitled," will be taken up according to William Green, the new president of the American Federation of Labor, successor of the late Samuel Gompers, who is in appearance a striking contrast in some ways to his well known predecessor. He does not give the impression of being so aggressive as Mr. Gompers was, but, his friends declare, and his record shows, that once in a fight he is decidedly aggressive and is extremely tenacious.

To Washington correspondents on Tuesday, Dec. 30, he made known his policies. He faced the fire of innumerable questions and displayed skill in answering. He did not commit himself or the organization he represents to any new policies, but he did reiterate policies of the federation. Mr. Green said that organized labor would resist any and all attempts to lower workers' living standards anywhere and everywhere. He continued:

"Ours is a constant, never ending fight for a full and complete recognition on the part of all employers of labor of the principle of collective bargaining, for justice, decent wages and tolerable and humane conditions of employment. Our task will never be completed so long as any part of this declared goal remains unrealized.

"We purpose to be helpful in supporting sound, worthy projects in the field of social justice and economic reform. While supporting legislation, both State and National, which may prove by careful analysis to be of benefit not only to the workers, but to the citizenship as a whole, we shall oppose with all the power we possess, legalized compulsory arbitration, the abuse of the writ of injunction in labor disputes, the restriction of a legitimate exercise of our liberties, and the curtailment of our inalienable rights."

When his attention was called to the apparently sharp decline in membership of the American Federation of Labor from 4,050,000 in 1920 to 2,900,000 in 1924, Mr. Green explained that the present "reported membership" represents exclusively a paid up membership, while there always is a large membership which is relieved from payment of dues on account of unemployment.

Mr. Green is known as a conservative type in the ranks of organized labor and there is a belief that he may have a great deal of difficulty with the so-called radicals in the American Federation of Labor. He is an out and out "anti-red," as was his predecessor. Mr. Green is rated as a Republican and is said never to have favored organized labor supporting a third political party. But whatever policies Mr. Green may advocate, he made it clear that it is his purpose to pursue those that represent the American Federation of Labor. It was indicated from this that his personal views will not be allowed to conflict with his views as head of the organization. For example, Mr. Green is a total abstainer, but the American Federation of Labor as a body has favored light wines and beer, as has Mr. Green in the past. There are other questions which will require the serious consideration of Mr. Green, an example of which is the dispute among United Mine Workers, his own organization, and the American Federation of Labor, concerning the employment of miners by the Brotherhood of Locomotive Engineers. As is known, the Railroad Brotherhoods control coal mines near Charleston, W. Va., and miners engaged in them are striking for higher wages and better working conditions. The employers of the miners are in the service of the railroads, and thus one group of organized labor is striking against another group. Attempts to settle the dispute were made by Mr. Gompers shortly before his death.

COMMON LABOR NEEDED

Mahoning Valley Manufacturers Face Serious Problems as to Employees

YOUNGSTOWN, Jan. 5.—Iron and steel manufacturers are giving attention to the problem of an adequate supply of common labor for the period of sustained and expanded operations which it is believed is just ahead. Employment departments point out that the mills have a surplus of semi-skilled workers. There is no common labor shortage at this time, but managers are wondering whether they will be able to adequately man their plants next spring and summer.

Usually with the first warm weather in the spring there is an exodus of those workmen, principally common laborers, who prefer outside employment, in building and road construction, railroad maintenance and the like. In many instances, such jobs pay better than do the mills for common labor, and men are naturally attracted to them.

In the winter this type of workmen finds employment in the manufacturing concerns, and the steel plants get their share. It is for this reason that the mills of the Mahoning Valley have been able to enlarge their operations the past two months, with enough workmen available. Employment conditions are currently reported satisfactory, with a job for every man who wants one.

But Valley industrial concerns realize that if production continues to broaden, they will likely face a serious problem of adequate common labor supply next spring. Despite the labor-saving devices and the improved machinery introduced into steel mill practices the past ten years and longer, it is still necessary to have a certain percentage of common laborers, who are required in the operation of a property.

This has been amply demonstrated during occasional labor disturbances in the past ten years, operations ceasing when the so-called common laborers quit work in a concerted way. Production was paralyzed.

Usual Sources Not Available

The problem of securing workers in this class becomes more complicated at this time because the usual sources of supply are no longer available. Restrictions imposed by Congress upon immigration from Central European countries have curtailed the best source of supply of this class of workmen for this district. In other years, Valley mills were able to secure a class of competent, reliable and careful workmen from the Central European countries. These men proved adapted to mill work; they liked the long hours because of the fat pay envelope which they produced; naturally industrious, they proved diligent because of the monetary rewards involved.

Most of such imported workers were advanced, in the course of a few months, to semi-skilled positions and subsequently to the ranks of skilled men. As a result, the mills have a surplus of semi-skilled men.

Negroes have likewise been imported from the Southern States in large numbers for common labor in the steel plants. It was common practice for employment departments to send representatives to the principal cities of the South, where they recruited negroes. It was the custom to pay the railroad fare and board of the men to point of destination, and many negroes were attracted by this offer and the possibility of higher wages than they had ever before earned.

Importation of Negroes Hampered

But negroes have proved indifferent workers in the iron and steel industry. At the same time, however, the mills could always depend to a certain extent upon this class of workers. Within the past two years, though, the Southern States have become alarmed over

the exodus of their negro population, and have created barriers against their migration. Imposing fees are assessed upon employment agencies from the North, and other obstacles have been set up by the South. It is no longer the simple problem it was formerly to recruit negroes in any numbers from the South.

Managers of Northern mills are hoping the immigration laws will be modified to some extent, so as to permit a larger influx of immigrants from Central Europe. They are also discussing the possibilities of importing workmen from Mexico. This country offers possibilities of securing men in large numbers. It is questioned whether they would be adapted to mill work, but the field is available and this source of supply will probably be tried to some extent during the next year or two.

It is readily discernible that the problem of labor supply presents many new and different aspects, as compared with a few years ago, especially for common labor.

ACTIVE BUYING AT SEATTLE

December Best Month Since March for Some Steel Distributors

SEATTLE, Jan. 2.—Three or four of the Seattle sales representatives of Pittsburgh and Eastern steel mills say that December was the best month in every way that they have had since last March, and that the outlook for 1925 is all that could be desired. Not only were sales larger last month, but prices obtained were better than for some months, and the whole market is very strong, with indications that some of the Eastern mills will soon announce further advances in prices.

The tenor of the letters received by selling agents here from the Eastern mills is most optimistic, and offers of orders that could be taken for first half delivery are often turned down by the mills, or else confined to first quarter shipment. It is true the mills have considerable tonnage on their books for forward delivery at relatively low prices, but with the greatly increased operations of the mills, these orders will be pretty well cleaned up in the first quarter, and the average of prices in the second quarter will be considerably higher than in the first three months. One local sales manager of a large Eastern mill has received instructions not to accept any orders for second quarter shipment, while all inquiries of any size for first quarter must be submitted to the mill before any prices are quoted.

There is not much foreign inquiry for steel products of any kind, and local importations have fallen off almost to zero. In many cases there was dissatisfaction with quality or deliveries of foreign steel, and some local houses that made importations and also some consumers that used it, now say they prefer to buy or use local steel, even at the considerably higher prices they have to pay.

The demand for plates is steady, but mostly for small lots ranging from 50 or 100 tons up to 200 tons. The city of Seattle was a fairly large buyer of plates last year for municipal work. This is over for a time, but will open in the early spring. The city has plans for extensive improvements this year in West Seattle, and if these are put through, a large amount of steel will be needed, mostly plates and structural steel. A lot of small wooden bridges are to be replaced with steel bridges, and while each will take only a small amount of steel, the aggregate will be large. The only large inquiry for plates now in the market is for about 800 tons for a pipe line in eastern Washington.

Building promises to be very active in Seattle in 1925, and already there is talk of three or four very large office buildings and apartments to be built this year, which would require considerable steel, mostly reinforcing bars. The only large job in the market now is the Bellwood Street bridge in Portland, Ore., 1225 tons, bids on which are to be opened Jan. 7.

Upward of a dozen of the largest canneries here have closed for their needs of tin plate for all of 1925. Shipments on these contracts will be made by the mills to Prince Rupert, British Columbia, on an all rail rate of 75c. per 100 lb., this being the rail rate from Chicago to Prince Rupert, and the Pittsburgh mills will meet this rate, absorbing the excess in the rate on the all rail haul from Pittsburgh mill. From Prince Rupert the tin plate is taken by water to the canneries on a low rate. These salmon and other fish canneries use considerable tin plate in a year, one company alone taking upward of 100,000 boxes per year. All indications are for a heavy fish pack this year, probably larger than in 1924, which was a good year in this important industry.

Sales of sheets here last month were much the largest in any one month for a long time. One Youngstown mill had been selling here freely, but recently advised its local sales manager that on galvanized it was filled up for first quarter, while on black and annealed it had a very limited tonnage to sell.

The Pacific Coast Forge Co., largely owned by the Pacific Coast Steel Co., is a maker of spikes, and is securing most of the business in that product coming up in this district. The company is quoting the Pittsburgh prices, plus the freight rate from Pittsburgh, but makes delivery to buyers, thus saving them about $2 per ton.

The feeling of those in close touch with the local steel market is that this year is going to be a very good one and that prices will rule higher on the average than last year.

Union Drawn Steel Co. Acquires Frasse Steel Works

The Union Drawn Steel Co., Beaver Falls, Pa., to meet the changing conditions in the cold-drawn steel industry, particularly since the abolition of the Pittsburgh base as a sole basing point for steel prices, and better to serve the consuming and jobbing trade in the Eastern and New England districts, has purchased outright the plant and holdings of the Frasse Steel Works, Inc., Hartford, Conn., effective Jan. 1.

The acquisition of the new property will give the Union Drawn Steel Co. a chain of five cold-drawn steel plants, so situated as to assure the maximum in service to all consuming centers.

The output of the Hartford plant will be used to serve the New England and Eastern trade; the Gary, Ind., mill will supply the Western consumers, including the large agricultural trade; the output of the Hamilton, Ont., plant will be devoted to the Canadian users, while the two main plants at Beaver Falls, Pa., will serve the demand for cold-finished products in the central territory, which embraces the automobile builders and allied industries. The company also owns and operates warehouses at Detroit, Chicago, Cincinnati, New York and Philadelphia.

The Hartford works is the largest cold-finishing plant in the East, having a capacity of upward of 30,000 tons annually. It was built in 1916 by the Frasse Steel Works, Inc., chiefly to supply the warehouses of the Peter A. Frasse Co., Inc., and New England consumers. Products of the Hartford plant include a full range of sizes of cold-drawn and turned and polished steels, as well as a complete line of special shapes. The plant also has a well equipped heat treating department. Installation of additional modern equipment for cold-finishing purposes will be authorized, and production increased to meet the increasing demand for cold-finished products in the East.

The Union Drawn Steel Co. is one of the pioneers in the cold drawing of steel in this country, the first shipment having been made from Beaver Falls, Aug. 15, 1889. The additional capacity places the company in first place in point of tonnage among the producers of cold-finished steel.

The transaction does not involve the Peter A. Frasse Co., Inc., a jobbing concern having warehouses in New York, Buffalo and Philadelphia. This company will continue to handle the products of the Hartford plant in all of its warehouses.

Iron and Steel Exports Low in November

Smallest Outgoing Tonnage in 22 Months— Imports 20 Per Cent Below Average of Previous 10 Months

WASHINGTON, Dec. 30.—Reflecting the lightest monthly movement of 1924, exports of iron and steel in November totaled 123,577 gross tons, valued at $16,075,866, as compared with 157,071 tons in October. The previous low mark of the year was in March, when exports aggregated 123,618 tons.

For the 11 months ended with November of this year exports totaled 1,663,558 tons, valued at $205,167,607, as against 1,814,751 tons, valued at $212,649,924 for the corresponding period of last year.

Imports of iron and steel in November were 35,707 tons, valued at $1,844,821, as against 40,873 tons in October, and were the lowest of the year except July and January, when they amounted to 30,410 tons and 26,675 tons respectively. Imports during the 11 months of 1924 were 487,326 tons, valued at $25,566,767, compared with 707,590 tons, valued at $212,649,924, for the corresponding period of 1923.

Steel rails constituted the largest single item of exports in November, when the total was 14,515 tons. Of this quantity 5798 tons went to British South Africa; 4829 tons to Guatemala; 1386 tons to Cuba and 440 tons to the Philippine Islands. The next largest item of exports in November was tin plate, totaling 14,326 tons; of this amount Japan took 10,508 tons; Canada, 1414 tons, and Argentina, 693 tons. Of the 12,434 tons of black steel sheets exported in November, 8040 tons went to Japan and 3790 tons to Canada. Of

Sources of American Imports of Iron Ore

(In Gross Tons)

	November		Eleven Months Ended November	
	1924	1923	1924	1923
Spain	6,274	1	63,010	214,891
Sweden	9,407	20,562	270,762	725,429
Canada	496	178	3,909	24,703
Cuba	27,868	13,300	270,081	660,679
Chile	152,300	.....	1,043,275	.....
All other countries	23,334	43,613	210,443	985,538
Total	219,679	77,654	1,861,480	2,611,240

United States Exports of Iron and Steel

(In Gross Tons)

	November		Eleven Months Ended November	
	1924	1923	1924	1923
Pig iron	1,478	3,198	38,934	29,568
Ferromanganese	20	9	3,165	4,293
Ferrosilicon	6	79	765	714
Scrap	2,555	6,167	91,676	60,567
Ingots, blooms, billets, sheet bar, skelp	7,560	8,342	90,291	107,298
Wire rods	1,089	8,005	17,045	34,377
Iron bars	322	492	4,840	12,317
Steel bars	4,751	12,365	92,438	147,315
Alloy steel bars*	366	60	2,557	2,098
Plates, iron and steel	4,094	5,801	80,277	108,425
Sheets, galvanized	11,062	7,791	99,982	107,372
Sheets, black steel	12,434	17,188	141,147	102,461
Sheets, black iron	1,179	780	9,977	13,517
Hoops, bands, strip steel	2,501	2,955	31,153	36,305
Tin plate, terne plate, etc.	14,326	14,634	148,428	106,843
Structural shapes, plain material	8,283	9,103	94,822	115,988
Structural material, fabricated	4,779	8,799	66,083	74,872
Steel rails	14,515	26,900	185,631	245,844
Rail fastenings, switches, frogs, etc.	1,569	3,251	34,022	36,307
Boiler tubes, welded pipe and fittings	12,059	20,341	197,578	178,230
Cast iron pipe and fittings	3,084	2,548	27,420	26,225
Plain wire	2,242	3,736	35,455	84,970
Barbed wire and woven wire fencing	7,413	6,880	83,886	69,132
Wire cloth and screening*	85	98	1,553	1,825
Wire rope	194	413	2,934	5,835
Wire nails	873	6,941	20,803	39,489
All other nails and tacks	786	575	7,032	8,129
Horseshoes	56	89	919	862
Bolts, nuts, rivets and washers, except track	1,268	1,444	16,347	17,503
Car wheels and axles†	1,697	1,971	20,574	19,618
Iron castings†	483	571	7,862	9,217
Steel castings†	282	230	5,449	4,412
Forgings†	166	200	1,513	2,822
Total	123,577	186,956	1,662,558	1,814,751

*Not reported separately prior to January, 1922.
†Previous to January, 1922, reported by value only.

Imports of Iron and Steel Into the United States

(In Gross Tons)

	November		Eleven Months Ended November	
	1924	1923	1924	1923
Pig iron	9,880	9,299	180,966	355,465
Ferromanganese	6,185	4,211	39,274	86,663
Ferrosilicon	1,411	862	10,106	11,331
Scrap	3,571	3,110	53,629	157,526
Steel ingots, blooms, billets, slabs and steel bars	2,881	2,942	36,393	20,367
Rails and splice bars	2,474	3,367	19,599	28,770
Structural shapes	3,019	523	37,252	9,045
Boiler and other plates	1	51	3,254	1,714
Sheet and saw plates	39	233	2,452	2,468
Bar iron	371	236	4,077	7,367
Tubular products	4,706	465	51,462	4,160
Castings and forgings	132	150	2,658	2,457
Nails and screws	29	10	329	1,015
Tin plate	18	108	1,005	9,846
Bolts, nuts, rivets and washers	16	25	153	202
Wire rods	556	294	6,237	3,611
Round iron and steel wire	197	204	3,119	3,430
Flat wire and strip steel	130	203	1,971	1,214
Wire rope and insulated wire, all kinds	81	71	13,390	939
Total	35,707	26,364	487,326	707,590
Manganese ore	19,919	14,790	236,635	194,045
Iron ore	219,679	77,654	1,861,480	2,611,240
Magnesite	2,012	4,769	61,947	67,645

Exports by Months, July, 1923, to October, 1924

(In Gross Tons)

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,026
Calendar year 1919	4,239,827	309,682	258,907
Fiscal year 1920	4,212,732	248,126	288,766
Calendar year 1920	4,961,851	217,958	216,873
Fiscal year 1921	4,168,619	129,541	82,549
Calendar year 1921	2,213,042	28,305	10,263
Fiscal year 1922	1,721,418	28,330	63,127
Calendar year 1922	1,986,297	30,922	107,201
Fiscal year 1923	1,816,329	31,891	137,757
July	168,558	2,366	8,357
August	161,426	3,117	11,232
September	172,499	2,148	12,610
October	152,511	3,294	13,442
November	186,956	3,198	16,347
December	177,844	2,750	11,073
Calendar year 1923	1,992,595	32,318	152,749
January, 1924	247,942	3,812	8,594
February	164,820	4,773	11,463
March	123,618	4,047	2,278
April	131,276	4,117	8,275
May	154,136	4,317	4,895
June	163,770	2,057	11,173
Fiscal year 1924	2,009,342	40,596	119,744
July	137,481	1,796	10,363
August	134,628	4,365	6,127
September	135,979	4,799	15,472
October	157,071	3,373	15,569
November	123,577	1,478	8,649
Eleven months	1,663,558	38,934	107,236

*Calendar years.

the 11,062 tons of galvanized sheets exported in November, 3618 tons went to Argentina; 1355 tons to the Philippine Islands; 891 tons to Cuba and 746 tons to Colombia.

Of the 6185 tons of ferromanganese imported in November, 6155 tons came from England. Imports of structural shapes in November totaled 3019 tons, of which 2448 tons came from Belgium; 272 tons from France; 137 tons from England, and 120 tons were credited to the Netherlands.

Of the tubular products imported in November, amounting to 4706 tons, the great bulk consisted of cast iron pipe. Imports of cast iron pipe from France in that month were 2654 tons, while 854 tons came from Belgium. The heavy movement of tubular products into the United States from abroad during the 11 months ended with November is reflected from the total of 51,462 tons, and the figures are made all the more striking when compared with only 4160 tons imported during the same period of 1923.

Imports of Iron and Steel in Gross Tons
(Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
1909 to 1913, incl.	26,505	†14,132	.....	.....
1914 to 1918, incl.	23,351	4,645	3,281	‡47,155
1919 to 1921, incl.	23,901	5,708	3,710	37,115
1922	59,545	31,954	9,117	31,204
January, 1923	126,078	83,935	5,120	829
February	67,704	35,793	9,234	4,636
March	106,197	72,344	9,030	12,799
April	77,903	36,371	7,221	14,071
May	75,883	39,764	10,482	12,734
June	68,019	30,033	12,794	36,138
Six months' average	85,964	49,706	8,980	13,535
July	53,464	19,760	12,381	23,824
August	45,439	14,564	7,334	23,026
September	36,611	8,353	9,744	35,175
October	29,852	9,349	9,372	16,842
November	26,364	9,299	5,073	14,790
December	27,009	12,355	2,307	12,003
Twelve months' average	61,217	30,652	8,343	17,171
January, 1924	26,675	10,587	3,033	23,081
February	42,269	15,482	4,847	4,430
March	39,278	16,919	3,941	46,067
April	50,969	17,171	7,371	29,729
May	66,801	25,220	5,501	31,993
June	60,569	28,697	2,347	24,726
Fiscal year average	42,115	15,643	6,105	23,807
July	30,410	13,511	1,435	12,287
August	44,928	16,189	1,120	16,160
September	45,214	16,347	3,578	6,269
October	40,873	10,963	8,608	12,088
November	35,707	9,880	7,596	19,919
Eleven months' average	44,302	16,451	4,178	21,672

*Not included in "total imports."
†Includes ferroalloys.
‡Average for three years, 1916 to 1918 only.

Structural and Ornamental Ironwork Produced

In 1923 the establishments engaged primarily in the manufacture of structural and ornamental iron work, including girders, columns, trusses, grills, railings, fire-escapes and other builders' ironwork, turned out products valued at $404,924,956, compared with $250,085,446 from the same class of establishments in 1921. The number of wage earners increased from 32,897 to 51,537 and their wages from $47,455,082 to $80,809,280. The horsepower used in 1923 was 205,607 and the coal consumed, 283,055 net tons.

Nearly one-fourth of the 1055 establishments in 1923 were located in New York, which had 235. Pennsylvania reported 120, Illinois 104, California 78, New Jersey 72, Massachusetts 63, while the remainder was scattered in 30 States and the District of Columbia.

An official of the Youngstown Sheet & Tube Co., Youngstown, states that specifications against contracts in December involved twice the tonnage of November specifications, and that shipments were 50 per cent larger than the preceding month.

Coal Consumption Indicates Increased Activity of Industries

Coal consumption figures, as collected by the National Association of Purchasing Agents, show American business increased approximatley 10 per cent during November. Production of both bituminous and anthracite coal decreased in November several million tons, because of the unusual number of holidays observed in the coal fields, but the daily average production was greater than that for October. Coal production took a spurt in the first week of December in both bituminous and anthracite fields, helping somewhat to recover time lost for Thanksgiving celebrations.

The estimated total amount of bituminous and anthracite coal consumed increased about 4,000,000 tons in November, notwithstanding the fact that industries were working fewer days than in October. The consuming industries observed fewer holidays, however, than were observed in the mining fields and, of course, railroads and public utilities consume coal steadily regardless of holidays. With the exception of January, figures for November showed a greater consumption than that of any month of the year and were about the same as those estimated for November, 1923.

Of all industrial firms reporting stocks and consumption of coal, 72 per cent showed increased consumption during November, 17 per cent about the same amount used and 11 per cent used less than in the previous month.

Estimates of coal in the hands of industries showed that supply on hand Dec. 1 approximated a sufficient amount for 41 days' operation, basing consumption on amount used in November. Last month's figure showed about 50 days' supply on hand.

Carnegie Steel Safety Calendar

A safety calendar for 1925 just put out by the Carnegie Steel Co. in harmony with persistent efforts of the company is the result of work by the general safety committee and each of the illustrations on 12 pages carries a lesson in safety, conceived and executed by a school pupil in towns or cities where the company maintains a steel plant.

The idea first took form early in 1923 when the safety committee arranged a safety poster contest in the public and parochial schools of the mill communities. Three cash prizes were awarded in each community as well as a number of special cash prizes and several honorable mentions.

In this last poster contest, about 7600 posters were submitted from which were selected one for each month of the year for the calendar. Each of these pages bears an exact reproduction of the poster drawn by a school pupil, and selected for this purpose. Each plant, too, is represented on one of the pages. Every line of the child's work is reproduced and every color maintained by a four color process of the printer's art. A portrait of each child appears at the side of the poster with his or her name, age, grade, school and home community, thereby carrying a brief sketch of the child artist.

The front cover of the calendar, done in black and soft gray tones, carries an illustration of the company's safety trophy for 1925 with a story of the composition.

Authorization has been given by the Interstate Commerce Commission to the Monongahela Connecting Railroad Co. to acquire control of the Eastern Railroad Co. through purchase of the latter's capital stock. Both lines are subsidiaries of the Jones & Laughlin Steel Corporation. This transaction, according to the report of the commission, brings to an end a project for building a line of railroad from Pittsburgh to Geneva-on-the-Lake, Ohio. The report said the project had been abandoned. The Eastern Railroad has no power or cars of any kind and performs no service as an operating carrier. Its main line is only a little more than half a mile in length with almost a mile of yard track sidings.

NEW SCRAP SPECIFICATIONS

Some Dealers Believe Requirements Are Too Severe—Conference in Washington

Work on the new iron and steel scrap specifications, in preparation for the past two years by the National Association of Purchasing Agents for consideration by the Associated Steel Works Purchasing Agents and the United States Bureau of Standards, has been completed and the new specifications will be submitted at a meeting in Washington, Jan. 12, called by the United States Bureau of Standards. It is recommended by the iron and steel committees of the National Association of Purchasing Agents, under the chairmanship of G. C. McClure of the American Rolling Mill Co., that the new classifications be adopted for one year's trial. At the meeting in Washington, which will be open, general discussion of the advisability of the new specifications is expected both by buyers and sellers of iron and steel scrap.

Dealers in scrap iron and steel in many cases point out that the new specifications are so severe that the necessary sorting and rigid classification necessitated would increase the cost to the consumer. These sellers claim that while there are a number of large users of scrap interested in the trial of these specifications, several of the large consumers seem inclined to continue the use of their own specifications.

Scrap for Use in Blast Furnaces

Pipe Busheling Scrap.—Iron and steel pipe and flues (clean), bedstead tubing and similar material cut 8 in. and under in length, free from galvanized material and foreign metals.

Cast Iron Borings.—Clean cast iron borings free from badly corroded material, lumps, scale, other metals, dirt or foreign material of any kind.

Shoveling Turnings.—Clean, short, steel and wrought iron turnings, drillings or screw cuttings, not over 6 in. in length, free from stringy, bushy or tangled material, corroded or rusty lumps, excessive oil, scale, other metals, dirt or foreign material of any kind. Must be suitable for charging into blast furnaces by mechanical means.

Mixed Borings and Turnings.—Clean, short, steel and wrought iron turnings, drillings, screw cuttings and cast or malleable iron borings and drillings, not over 6 in. in length, free from stringy, bushy, tangled, corroded material, lumps, excessive oil, scale, other metals, dirt or foreign material of any kind. Must be suitable for charging into blast furnaces by mechanical means.

Corroded Borings and Turnings.—Corroded and lumpy borings, turnings and similar stock, free from scale, other metals, dirt or foreign material of any kind. Must be suitable for charging into blast furnaces by mechanical means.

Burnt Iron Scrap.—Old annealing boxes, stools and pots, grate bars and similar burnt cast or malleable iron broken in pieces not over 9 in. x 9 in. in size. Brake shoes may be included.

Mill Scale.—Iron oxide produced in rolling mill practice, from drop forge hammers or from a bushelling mill squeezer. Should contain not less than 65 per cent metallic iron and must be reasonably free from dirt, grease and other foreign material.

Mill Cinder.—Cinder from puddling furnaces, heating furnaces and soaking pits. Should contain not less than 60 per cent iron and be reasonably free from dirt and other foreign material.

Scrap for Use in Basic Open-Hearth Furnaces

No. 1 Heavy Melting Steel.—Railroad steel such as angles, splices, short rails, couplers, knuckles, draw bars, cut cast steel bolsters, axles, railroad coil and leaf springs (all coil springs to be ½ in. or larger diameter steel), steel castings, steel rolls, croppings from billets, blooms, sheet bars, structural shapes; also heavy rods, bars and plates (not needle or skeleton scrap), boiler plates must be cleaned of lime and free from stay bolts, and not over 18 in. wide or 3 ft. long, heavy forgings and forge butts, rail ends and new mashed pipe ends (original diameter 4 in. and over) thoroughly flattened, oil well drill stems, bits and jars and similar heavy material. (Plate scrap ¼ in. and havier to be cut 12 in. x 12 in.) All to be ¼ in. or over in thickness, not over 18 in. wide or 5 ft. long.

Regardless of dimensions given above, individual pieces must be sheared into such shape that they will lie flat in a charging box, rods and bars under 2 in. in thickness to be sheared approximately 18 in. in length and all bent or curved pieces to be 12 in. or under in length or width, no piece to weigh less than 5 lb. No agricultural shapes, annealing pots, boiler tubes, grate bars, alloy steel scrap, cast iron, malleable iron, sheet iron or curly or unwieldly pieces will be accepted. Must be free from dirt, excessive rust or scale, or foreign material of any kind. American Railway Association specifications Nos. 7, 8, 9, 21, 24, 31, 36 and 44 will be accepted.

No. 2 Melting Steel.—Plate scrap such as car sides, automobile frame stock, tank and skelp crops, ⅛ in. and heavier, steel parts of agricultural implements, wagons, buggies and scrapped automobiles, auto and buggy springs cut apart, rods and bars, ½ in. and heavier, punchings, ¼ in. and over in thickness, heavy clippings, new unmashed pipe ends, under 4 in. in diameter, horse shoes and similar material. Car sides and all light plates to be sheared 15 in. x 15 in. or under and all tires and light rods to be 12 in. and under in length. Any curved or twisted pieces must be sheared into such shape that they will lie flat in a charging box and not tangle in handling with a magnet, all to be free from cast iron, malleable iron, alloy steel scrap, burnt scrap, dirt or foreign material of any kind. Maximum size 15 in. wide by 3 ft. long. Within the limits of this specification, American Railway Association classification No. 25 will be accepted.

Heavy Shoveling Steel.—Heavy, clean wrought iron and steel scrap, ¼ in. and over in thickness, not exceeding 8 in. in breadth or length and no piece to be less than the equivalent of ⅛ in. square and 3 in. long. To include clean horse shoes, railroad spikes, bolts, nuts, tie plates, etc., boiler, bridge and structural punchings and clippings, small bar and shafting crop ends and other similar material.

To contain no burnt material, cast or malleable scrap, cut pipe and tank, skeleton stock, badly corroded material, or any twisted or tangled scrap. Must be free from foreign metals of all kinds, from galvanized, painted, enameled or other coated stock, and from dirt and rubbish of all kinds. Must be loaded in separate cars from other grades of scrap. American Railway Association classification No. 58 will be acceptable on this specification.

Short Shoveling Flashings.—Flashings or trimmings from iron or steel forgings. To be 10 in. or under in length, suitable for hand shoveling, to include no tangled or twisted material.

Long Flashings.—Flashings or trimmings from iron or steel forgings, which have been strictly separated to a minimum length of 20 in. and not to exceed a maximum of 36 in. There must be a thickness in some section of each of these flashings of not less than 3/16 in.

Mixed Flashings.—Flashings or trimmings from iron or steel forgings, not over 36 in. in length.

No. 1 Busheling.—Iron and soft steel pipes and flues (clean), tank, cut hoops and bands No. 12 gage and heavier, steel plate punchings and clippings, soft steel and iron forgings and flashings; nothing over 8 in. wide or long. To be free from burnt material, hard steel, cast, malleable, galvanized or coated stock of any kind. American Railway Association specifications Nos. 14 and 58 will be accepted.

No. 2 Busheling.—Cut hoops, cotton ties, sheet and similar light material, No. 22 gage and heavier; nothing to be over 8 in. wide or long. To be free from hard steel, cast, malleable, galvanized or coated material of any kind.

No. 1 Selected Shearing Scrap.—Standard section T and girder rails, 40 lb. and heavier per yard, in long, straight lengths, to be free from frog and switch rails (not cut apart), and contain no high manganese scrap or cast welds or attachments of any kind, concrete, dirt or foreign material of any kind. American Railway Association specifications Nos. 33, 34 and 35 will be accepted.

(*Continued on page* 175)

COST TRENDS IN MANUFACTURING

Labor and Fuel in Iron and Steel: Machine Tools

The Tendencies Summarized

1. *The labor bill of iron and steel manufacturers is now relatively low, compared with the growing total value of their output. This favorable condition will continue for some months.*

2. *The trend of coal production and prices is moderately upward, but there is no shortage, and fuel costs will continue relatively low.*

3. *Coke prices are likely to advance in spite of large stocks, and this will make for firm iron prices.*

4. *Chiefly due to more full-time employment, machine tool makers show an increasing labor bill. Pig iron prices, too, have had a greater advance than machine tool output. Higher machine tool prices should result.*

BY DR. LEWIS H. HANEY*

THE value of the total production of pig iron and steel ingots has been rapidly increasing. After a very sharp upturn last August the gain has continued at a slightly lower rate, and in November the value of iron and steel produced had reached approximately the same level as in May, 1924. In view of higher prices and continued expansion in output there can be no doubt that the December figure will be still higher.

While the total payroll of iron and steel plants has in general followed the same course as the value of the product, it is apparent, as Fig. 1 shows, that the fluctuations have been much smaller. The payroll fell less in 1924 than did the value of the product. Its decline, however, continued longer and payrolls did not reach the bottom until August. At present the labor bill of iron and steel manufacturers is relatively low, as compared with the value of their output, and, judging by conditions in preceding periods of expansion, it will continue so for some months.

The significance of Fig. 1 is brought out clearly in the lowest curve, which shows the ratio of the labor bill to the value of product. Evidently the labor cost became burdensome about the middle of 1924, although even then it was not so

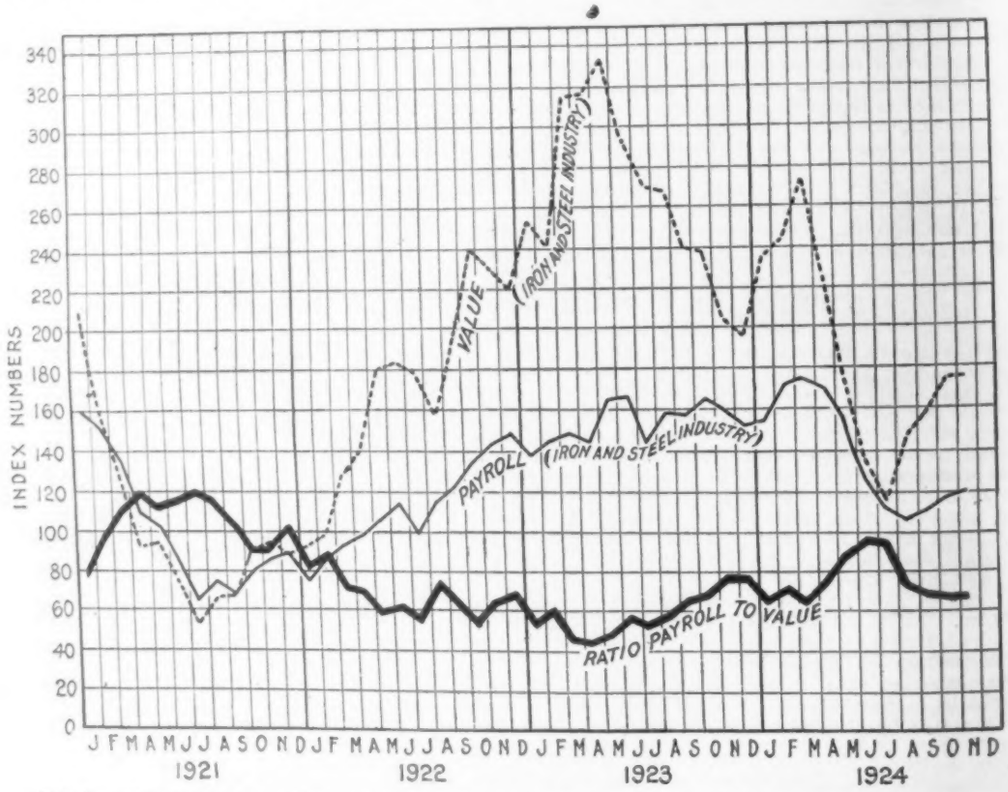


FIG. 1—COMPARISON OF PAYROLL IN THE IRON AND STEEL INDUSTRY WITH THE VALUE OF TOTAL IRON AND STEEL OUTPUT

(Index numbers; monthly average of 1921=100)

THE uppermost curve represents the monthly value of the production of pig iron and steel ingots and is arrived at by taking the product of pig iron production and THE IRON AGE composite pig iron price and adding thereto the production of steel ingots multiplied by the price of steel billets. (It is recognized, of course, that output of a given month is not likely to be moving at the average prices for the same month, but there is also the point that the value of the product may be considered in terms of its replacement cost.) The payroll is as reported by the Bureau of Labor Statistics for the iron and steel industry and the middle curve shows the trend of a chain index representing the monthly variations. The lowest curve represents the monthly movement of the ratio of the payroll to the value of products

*Dr. Haney is director of the New York University Bureau of Business Research. A contribution will appear every week and the series is planned to be a complete and continuous analysis of the iron and steel industry and its relation to the business cycle.

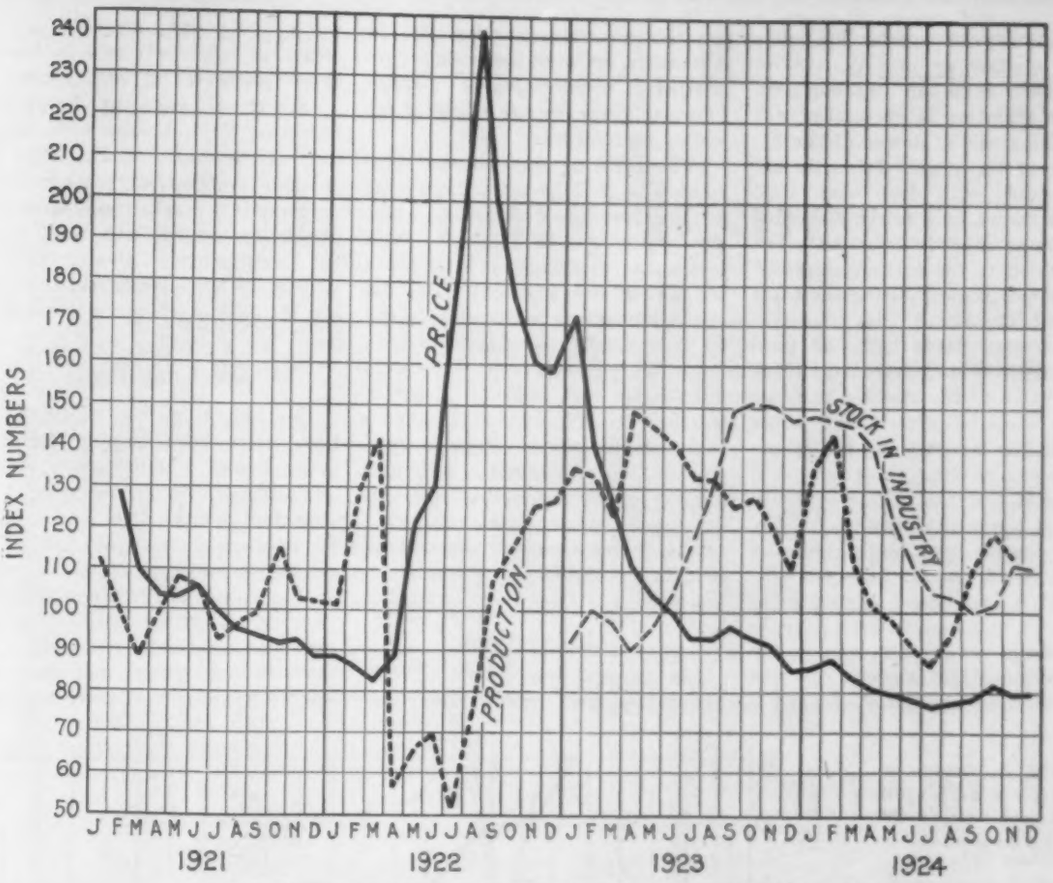


FIG. 2—BITUMINOUS COAL; PRICE, PRODUCTION AND INDUSTRIAL STOCKS

(Index numbers; monthly average of 1921=100)

THE solid line in Fig. 2 shows the course of the *Coal Age* composite of bituminous coal prices. The curve shown in heavy dots is the monthly production of bituminous coal as estimated from the weekly figures of the Geological Survey. The monthly totals are adjusted for seasonal variation. The line in dashes represents the course of industrial stocks of bituminous and anthracite coal as reported by the National Association of Purchasing Agents

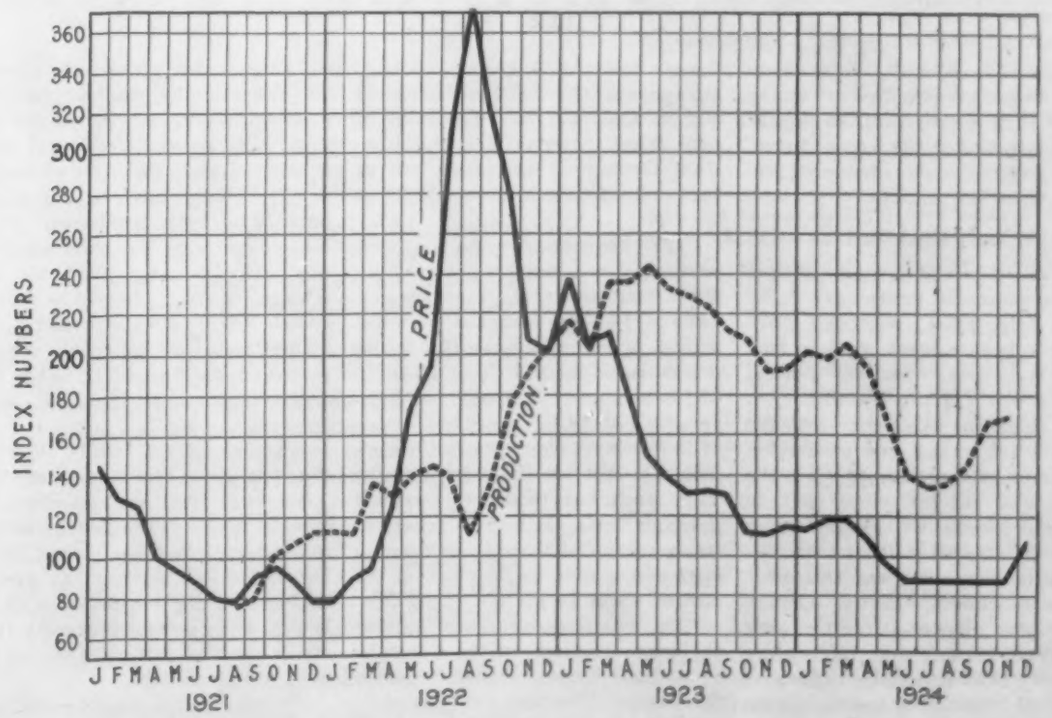


FIG. 3—COKE: PRICE AND PRODUCTION

(Index numbers; monthly average of 1921=100)

THE solid line shows a monthly index of coke prices based on THE IRON AGE Connellsville quotations. The dotted line represents the Geological Survey's figures covering production of beehive and by-product coke

high in comparison with the value of the product as in 1921. After June there came an improvement, and the situation in November was about the same as it was at the beginning of the year. Evidently the year ended with iron and steel manufacturers in a fairly favorable situation as regards labor costs and the outlook is for further improvement in this regard during the early months of 1925.

As variations in iron and steel payrolls have been less than those in the value of the product, the conclusion may be drawn that labor costs in this industry are not as adjustable to varying business conditions as is desirable. This condition suggests the desirability of stabilizing production, perhaps carrying on operations during dull times for storage. This would tend to reduce the amount of variation in both payrolls and volume of output and would correspondingly straighten out the curve showing the ratio of payroll to value of product. While there are doubtless great difficulties in the way of such a program, the degree of concentration in the iron and steel industry should make some progress in this direction possible.

Coal Situation

As shown in Fig. 2, a long decline in bituminous coal prices came to an end in July, 1924. Although there has since been a weak spell in coal prices it is clear that *the general trend is now slightly upward.*

At about the same time that the price decline ended, the production of bituminous coal jumped from the lowest level reached since 1922 to about the average of the past three years. It is apparent that *coal production in November and December has been almost exactly normal,* making due allowance for the long time trend.

Stocks of coal held by industries (including bituminous and the steam sizes of anthracite) reached a high peak in October, 1923, when they amounted to 77,620,000 tons. From that point they declined rather steadily to September, 1924, and have since increased moderately. *In November, however, consumption increased so considerably as to result in a small reduction in stocks at the end of that month.*

The present trend of coal production is slightly upward, in spite of the November decrease, which was chiefly due to holidays. With production continuing a little above the normal level and with industrial stocks amounting to between 40 and 50 days' supply, *there appears to be no prospect of any large increase in bituminous coal prices.* Nevertheless, it is fairly clear that bituminous coal touched bottom levels in July, August and September, and *first quarter requirements should be filled at present prices.* As industry expands during the next few months, moderately higher coal prices are in prospect.

Coke Outlook

In general the trends of coke production and prices have been similar to those of bituminous coal, as appears from a comparison of Fig. 3 with Fig. 2. The level of coke prices, however, remained constant throughout the latter half of 1924 and rose much more sharply at the end.

The chances for higher coke prices appear somewhat greater than is the case with coal. The increased demand for pig iron has been reflected in the coke markets, where prices have jumped from $3.25 to $3.75, and some business has been reported at $4. The recent action of independent operators in the Connellsville district in increasing the wage scale has tended to establish a higher basis. It may be conservatively estimated that the increase in coke cost means an increase in the cost of about $1 per ton of pig iron.

There is some apprehension that the wage increase in the Connellsville district may spread to other territories. This does not seem probable, however, in view of the lack of strength of the bituminous coal markets and the fact that recently several coal mines have shut down on account of the small spread between wages and prices. *Probably the increase in coke costs will be limited to the producers of coking coal.*

Stocks of coke at by-product plants on Sept. 1 were even larger than at the end of 1921. Past experience, however, suggests that this accumulation marks the bottom of a depression period, and that, while the accumulation should prevent very sharp price increases, diminishing stocks and rising prices are at hand.

Machine Tools

As shown in Fig. 4, there has been a general declining trend in machine tool activity down to August, 1924, with a moderate recovery since that month. It is believed that the number of employees fairly represents the activity in the industry.

Since June the index of the total payrolls of 143 machine tool plants has been relatively lower than the index of employment, but there has come a sharper upturn in the payroll index during recent months. *The labor bill of machine tool producers is now increasing faster than their labor force.* This must mean either (1) more full time operation, or (2) higher wages, or (3) a combination of both conditions. Probably the first is the chief explanation. In November, 1924, the percentage of full time in establishments which were operating was higher than in October. As reported by the Bureau of Labor Statistics it increased from 87 to 90 per cent.

In view of the trends shown in Fig. 4 it seems fair to conclude that *labor and material cost have increased more rapidly in the machine tool industry than has output during the last month or two.* At present the curve of pig iron prices as shown in Fig. 4 lies a little above the curve of the machine tool activity and has risen a little faster.

In general the machine tool output lags behind pig iron prices, and judging by the past it, therefore, seems probable that activity in the industry will increase moderately during the next few months.

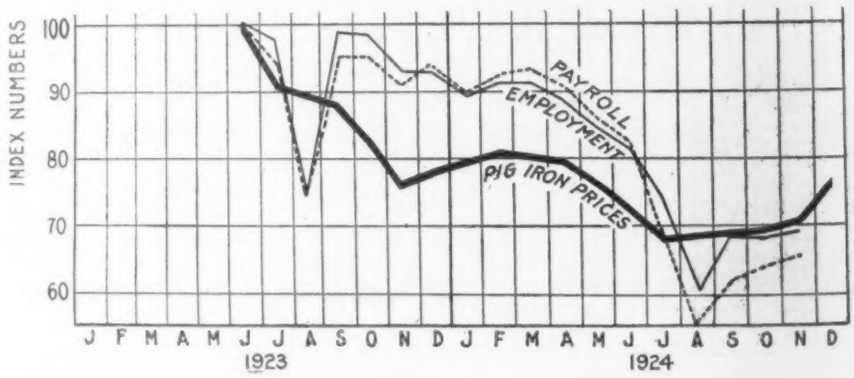


FIG. 4—TREND OF THE MACHINE TOOL INDUSTRY
(Index numbers; June, 1923=100)

ONE curve represents the number employed in the industry as reported by the Bureau of Labor Statistics. The dotted line shows the monthly percentage of change in payroll. The heavy line is THE IRON AGE composite price of pig iron

In This Issue

Pig iron output gains 14 per cent in December over November. Daily average 95,539 tons.—Page 152.

Serious shortage of common labor in spring is feared by Mahoning Valley manufacturers. Negro labor difficult to obtain; Mexicans may be imported.—Page 134.

Apparent decline of 28 per cent in A. F. of L. membership during past four years due to exclusion of delinquent members from present count, says Gompers' successor.—Page 133.

November machinery exports 9 per cent under October.—Page 122.

Iron and steel exports still falling. November total 123,577 tons, lowest in 1924.—Page 135.

Heavy fish pack looked for in 1925; probably larger than 1924, pointing to good business in this quarter for tin plate people.—Page 134.

While general trend of bituminous coal prices is slightly upward, no large increase is in prospect. Chances are greater for higher-priced coke.—Page 140.

Steel casting makers and users will be helped by extending specifications for particular classes of castings, research engineer asserts.—Page 119.

High cost of coal and transportation throttles English trade, British steel man tells fellow manufacturers. —Page 149.

Indications point to higher machine tool prices, says Dr. Haney.—Page 138.

Pig iron composite price rises slightly. Now $22.25, eight cents above last week's average. No change in steel composite.—Page 155.

Perfect castings increased to 90 per cent when laboratory men put on overalls to show that technical control would cut costs and raise wages. —Page 146.

Will Mr. Ford's purchase of Belgian rails at a saving ultimately result in a loss for him?—Page 144.

Long range price trend almost certain to be downward.—Page 145.

"I sometimes think that we should tear down the Statue of Liberty from the summit of this Capitol and place a big black pap bottle in its place," says Senator Bruce fighting proposed Government operation of Muscle Shoals.—Page 121.

Scrap dealers complain new scrap specifications, printed in full in this issue, are so severe that costs to consumers would be increased. — Page 137.

Will business during the next six or eight months get the benefit of the underbuying during the past three years?—Page 128.

Largest by-product coke plant in world at Clairton, Pa. Has 1134 ovens, with annual capacity over six million tons.—Page 128.

Copper output over billion and a half pounds in 1924; a new peace-time record.—Page 125.

Weekly picture of the industry in its relation to the business cycle to be given iron and steel producers and consumers by business research expert.—Page 147.

CONTENTS

January 8, 1925

Inspection Standards for Steel Castings 115
Some of Those Laid Down by Electric Steel Foundries, Based on Research —Meeting Specialization in Purchase Requirements

Raps Government Meddling in Business 121
Senator Bruce Points Out Dangerous Tendencies in His Own and Other Parties—Calls for Return to Sound Principles

Basic Production About on 1919 Level 127
November Shows a Drop After Successive Increases Since July—All Figures Are Lower Than Last Spring

Cost Trends in Manufacturing 139
Labor and Fuel in Iron and Steel—Machine Tools—Tendencies Summarized Indicate Low Labor Cost

December Pig Iron Output Shows Gain 152
Increase Over November 11,883 Tons Per Day—Year's Total 31,108,302 Tons—Net Gain of 23 Furnaces

More By-Product Coke Plants for Iron Industry 128
Iron and Steel Exports Low in November 135
Details of New Scrap Specifications 137
European Markets Quiet as Year Begins 148

Welsh Tin Plate Industry.....119
Proposed Reduction in Freight Rates....123
President Grace Hopeful for Good Business 125
Hudson Valley Blast Furnace.....125
Changes in Vanadium Corporation.....125
Base Prices for Hot-Rolled Flats.....126
Survey of Minerals of Pacific Coast.....126
Canadian Combustion Companies Merged 130
Employee Bonuses and Benefits.....131
Federation of Labor Policies.....133
Common Labor Needed in Mahoning Valley 133
Active Buying at Seattle.....134
Union Drawn Steel Co. Acquires Frasse Steel Works.....134
Coal Consumption Indicates Increased Activity of Industries.....136
McKinney Steel Co. Plans Additions....143
Freyn Engineering Co. Ten Years Old...143
Law Enforcement Favored.....147
Increasing Baltimore Manufacturing....167
Proposed Rates on Sewer Pipe Suspended.169
Plans of New Companies.....174
Industrial News Items.....185

NEW EQUIPMENT

Milwaukee Millers.....120
Combination Surface and Disk Grinder with Hydraulic Table Feed.....123
Resistor Unit for Electric Heating.....124
Dumper for Special Form of Car.....124
Six-Spindle Tilted Bolt Threader.....126
Bench Lathe Boring Tool Holder.....126
Speed Reduction Gear Sets.....130
Grinder for Finishing Flat Surfaces.....131
Machine for Separating Chips from Finished Work.....131
Vertical Spindle Disk Grinder with Motor in Base.....132
Portable Arc Welding Machines.....132

MEETINGS

Winter Sectional Meeting of Steel Treaters 119
Quad City Foundrymen.....147

STATISTICAL

Increased Production of Automobile Bodies 120
Machinery Exports Fall Off.....122
Copper in 1924.....125
Zinc Mining and Smelting in 1924.....131
Steel Spring Output Increased Heavily...132
Iron and Steel Exports.....135
Structural and Ornamental Ironwork Produced 136
Bituminous Coal Produced in 1924.....143
Lead Mining and Smelting Gains.....169

Iron and Steel Markets.....154
Comparison of Prices.....155
Non-Ferrous Metals.....169
Prices of Finished Products..170
Prices of Raw Materials, etc...171
New York Jobbers' Prices....186

Editorial 144
Railroad Equipment Buying..168
Fabricated Steel Business....168
Personal 172
Obituary 173
Machinery Markets.....177

McKINNEY STEEL CO. PLANS

Will Add Finishing Department to Steel Works—Contract for Mills Let

CLEVELAND, Jan. 5.—The McKinney Steel Co. will add a finishing department to its steel works in Cleveland, construction work on which will start shortly. This will include a 10-in. and a 12-in. bar mill, the contract for which has been placed with the Morgan Construction Co. The mill contract is the only one that has been placed up to the present time. Complete details have not been worked out, but the company plans to place contracts for the buildings, furnaces, tables and other equipment shortly. It plans to have the mills ready for operation some time in 1926. Steel bars with a range in size from ¼ to 3½ in. will be made on the two mills.

When the McKinney Steel Co. built its steel plant that was placed in operation in 1916, its intention was eventually to provide a finishing department. Since that time, its entire output has been sold in its semi-finished form of sheet bars, billets and slabs. Its steel works include 14 100-ton open-hearth furnaces, a 40-in. blooming mill, a 21-in. billet mill and an 18-in. sheet bar and billet mill. Its River blast furnace plant has four furnaces, three of 600-ton capacity, one of these having been rebuilt the past year and its capacity increased from 400 tons. The fourth furnace is now being similarly enlarged. The company states that it does not contemplate the erection of an additional blast furnace in the near future, although reports to that effect have been circulated.

Freyn Engineering Company Celebrates Tenth Anniversary

The tenth anniversary of the Freyn Engineering Co., Chicago, was celebrated Dec. 24, 1924, at a meeting at which all officers and employees were present. The rapid growth of the organization was traced in an address by H. J. Freyn, president. In 1914 the company started business in a single room in the Peoples Gas Building, Chicago, with a staff of three men. During that entire year, only one contract was obtained—an order for gas burners which brought $300 to the company's treasury. In 1924, 72 contracts were booked, the largest number for any year in the decade. For the entire ten years, the organization prepared 736 estimates and secured 539 individual contracts. The principal items embraced in the contracts were as follows: New complete blast furnace plants, 14; remodeled blast furnaces, 14; gas burners, 1332; Brassert whirlers, 39; Brassert gas washers, 100; Dorr thickeners, 18; Brassert-Jones hot blast stove linings, 113; waste heat boilers, 26; Mathesius hot blast gate valves, 132; electric sheet roll heaters, 53; chimney valves, 90; Beaton tuyeres, 47.

The company was first incorporated in February, 1916, as Heinrich J. Freyn, Inc. On April 19, 1917, the name was changed to Freyn & Co., and the capital stock was increased. In June, 1918, the style of the company was changed to Freyn, Brassert & Co., and H. A. Brassert was elected chairman of the board of directors, having been a member of the directorate since June, 1916. The outstanding capital stock of the company gradually increased as new employees became stockholders. The rule was strictly adhered to that no one could become a stockholder without contributing in some measure to its business activities. By 1922 the authorized capital stock was increased to $500,000.

A profit-sharing plan observed by the company provides that all members of the organization who have been in its employ for the entire fiscal year participate in special compensation, corresponding to one-third of the profit remaining after a deduction of 15 per cent has been made from the net profit of the company. The share received by each eligible employee is automatically computed on the basis of his total salary during the fiscal year and a so-called index number which is based on the length of service.

Recent announcement was also made of the change in the style of the company to the Freyn Engineering Co., a move occasioned by the resignation of H. A. Brassert as chairman and member of the board of directors. It was explained that Mr. Brassert's withdrawal from the company was necessitated by the increasingly heavy demands on his time by his own organization, known as H. A. Brassert & Co., which specializes in consulting work in the operation and management of blast furnace plants and other property and acts as technical advisor to financial institutions. Mr. Brassert will continue to act as consultant for the Freyn Engineering Co., and the Brassert company will not undertake any designing and construction engineering. A scarf pin was presented to Mr. Brassert as a token of appreciation of the organization.

To fill the vacancy on the board of directors caused by Mr. Brassert's resignation, Roger L. Foote, a prominent attorney, was recently elected a director. It was also announced that the company had added to its activities a foundry department in charge of F. W. Prince.

Bituminous Coal Produced in 1924

Preliminary estimates by the Geological Survey show 1924 production of bituminous coal to have been 467,700,000 net tons, an average per working day of 1,520,000 tons. The total is 18 per cent below the 1923 production of 564,157,000 tons, but is well ahead of 1922 with 422,268,000 tons and 1921 with 415,922,000 tons. In 1918, with 579,386,000 tons, the largest output in our history was recorded. The second largest was in 1920, with 568,667,000 tons, while 1919 showed very close to the 1924 figures, with 465,860,000 tons.

Anthracite coal, up to Dec. 27, is given as 89,320,000 net tons, compared with 93,020,000 net tons in 1923. Presumably the remaining four days of the year would supply some 900,000 tons, making the total in 1924 slightly more than 90,000,000 tons. Total production for the year of both kinds of coal becomes, therefore, about 558,000,000 net tons.

Canadian Blast Furnaces Being Added to Active List

TORONTO, Jan. 5.—Within the past two weeks the British Empire Steel Corporation has blown in its No. 8 blast furnace which has been banked for some weeks. The Algoma Steel Corporation, Sault Ste. Marie, Ont., with one furnace in blast is making repairs to other furnaces and it is expected that other furnaces will be blown in for supplying basic iron for the rail mill which will start up in the early future on orders recently received from the Canadian National Railways and the Canadian Pacific Railway. The Steel Co. of Canada, Ltd., Hamilton, Ont., has one stack in and a second ready for blowing in when conditions warrant.

Iron and steel interests in this country speak optimistically with regard to the present year despite the fact that business during 1924 was, in most cases, carried on in a most unsatisfactory manner, especially as to the purchase of raw material by consumers. At the present time there is still a large volume of pig iron business to be placed for first quarter, but this is chiefly from melters who make a practice of buying on a hand-to-mouth policy. This tendency, however, assures producers of a fairly good spot market for some time.

Permission has been granted the Jones & Laughlin Steel Corporation, Pittsburgh, to construct and maintain a rail and river terminal on the east bank of the Wolf River Canal at Memphis, Tenn. Work on the terminal and warehouse is expected to start immediately. It will be erected on the ground occupied by the old Navy Yard. Steel for the terminal will be shipped by river from Pittsburgh by the company in its own barges.

ESTABLISHED 1855

THE IRON AGE

EDITORS:

A. I. FINDLEY — WILLIAM W. MACON — GEORGE SMART

C. S. BAUR, *General Advertising Manager*

Member of the Audit Bureau of Circulations and of Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

F. J. Frank, *President* — PRINTED IN U. S. A. — George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West 39th Street, New York. Charles G. Phillips, *Pres.* A. C. Pearson, *Vice-Pres.* F. J. Frank, *Treas.* H. J. Redfield, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 425 Park Square Building. Philadelphia: 1402 Widener Building. Cleveland: Guardian Building. Detroit: 7338 Woodward Ave. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 536 Investment Building. San Francisco: 320 Market St. London, Eng.: 11 Haymarket S.W.1.

Subscription Price: United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50; Foreign, $12.00 per year. Single copy 25 cents.

Entered as second-class matter, June 18, 1879, at the Post Office at New York, New York, under the Act of March 3, 1879.

Mr. Ford's Belgian Rails

OFFICERS of Henry Ford's Detroit, Toledo & Ironton Railroad confirm the report that that line has bought 10,500 tons of rails from Belgian mills. They say that the price amounts to $40 a ton, delivered, if the rails go by rail from the American port to Detroit, and to $36.75 if the rails go all the way from Antwerp to Detroit by water. Rails from Pittsburgh would cost $46.72 laid down at Detroit.

The question appears to have been raised with the railroad officials whether, on the score of "patriotism"—that was the word, though probably interest in the prosperity of American industry was meant—they should not have been willing to buy rails from a mill at home even at a higher price. Their reply was in effect that by the same token of "patriotism" domestic mills should be willing to sell their rails in this country at prices as low at mill as those they make to Japan or other far-off buyers of American rails.

The retort raises an old question. Now and again a Congressman makes a speech—or asks a question when some steel manufacturer is on the stand at a tariff hearing—demanding to know why corporate "beneficiaries of a protective tariff" make sales abroad at lower prices at mill than they charge their customers at home. Usually the answer is that his foreign trade is largely a matter of overflow with the American manufacturer, and seeing that he often has to send his export products past the doors of his foreign competitors, located much nearer to the buyer than he is, he has to get under the bids of these competitors and in so doing absorbs a freight that brings the price at his plant considerably under that ruling in his home market. That being often the only way he can get business abroad, he thinks the sacrifice of profit is compensated for by the added employment he can give to workers at home and by such reduction in overhead as he can secure by running fuller.

In the case of the Ford purchase of Belgian rails, it might be said that, at 50 cents an hour for common labor, the American scale of steel works wages is about three times that of Belgian mills, and that no such amount could be paid if all the rails produced in the United States were sold at as low prices as are made on the small tonnages of rails shipped abroad. In fact, the whole familiar argument concerning the American standard of living could be gone over again—an argument Mr. Ford would consider forceful, seeing that the wages he pays have recognized that standard to an extraordinary extent.

All such comment would be entirely orthodox, but we have had quite another thought in mind in connection with Mr. Ford's Belgian rails. It is this:

Every visitor to one of our large steel plants in the past two or three years has been struck by the large spaces set aside for the parking of the automobiles in which the employees come to their work. Steel works layouts involve long distances. A single plant will stretch from two to four miles along a river bank. It is natural that thousands of workmen prefer riding to the mill to the long walks they once took. In Belgium there are the same long distances at steel works, but the workmen walk. An automobile is a luxury there which only owners and high salaried overseers can indulge.

With the picture before us of these vast acreages of workmen's automobiles at American steel works—Ford automobiles by the thousand—what more natural than this question: If Mr. Ford is about to buy $400,000 to $500,000 worth of rails for his railroad, why does he not put his money where it would add to this stream of automobile orders that has its sources in the steel mill towns of the Central West?

But that would be doing the usual; and Mr. Ford does not do the usual.

A REPORT of the National Industrial Conference Board states that some labor leaders are not enthusiastic over the formation of labor banks, as they fear the locking up of their funds in the capital of the financial institutions. Is it possible that the aforesaid leaders are afraid that

wage earners who become stockholders in the banks will lock up some sound ideas about business as the result of a little banking experience and will not be willing to rush into strikes?

Long Range Price Trends

RECENT and current predictions being that rising commodity prices are to be expected in the next few months, now is the time to reflect that the long range trend is almost certain to be downward; otherwise the occurrences of the moment will encourage an incorrect appraisal of the future.

The plain statistical showing that commodity prices in the United States declined for about 30 years both after our war of 1812, grouped with the Napoleonic wars in world affairs, and after the Civil War, has been much mentioned, and has sunk into men's minds in such a way, without analysis, that another fact is likely to be slighted. The other fact, just as clear though not nearly so pronounced statistically, is that prices had a rising trend for 15 to 20 years before the Civil War and before the World War. As those wars could not have thus cast their influence before, the conclusion must be that there are long range influences tending to advance prices. The votaries of the quantitative theory of money hold that increase in the volume of circulation, wider use of checks and greater flexibility in credits accounts for rising prices, but to all such arguments there are counter arguments. In the century before the recent war, wages advanced much more than commodity prices and some will argue that the chief influence lies in that quarter.

Such discussions are largely academic in character. They have their practical utility, in case they should result in clear-cut conclusions, to settle such questions as to whether a corporation, desiring to raise additional capital, should issue shares or long-term bonds, or whether the individual should invest in real estate or in mortgages.

The manufacturer or merchant is interested chiefly in certain commodities rather than in the general average of all commodities, and he can study the influences particularly applying to the lines in which he is interested.

Given a manufactured commodity, it is plain that, everything else being equal, the tendency should be for the price to decline year by year, for improvements in methods and appliances are certain to be made. If an individual manufacturer does not make improvements, he will disappear because his competitors make them.

If the supply of the commodity or of the raw material for the commodity is furnished by nature, the price, other things being equal, will tend to rise as the supply is depleted. That would be true, for instance, in iron ore, oil, coal and timber. There are practically unlimited supplies of coal, but the remaining supplies lie farther underground or farther along the surface from points of consumption.

Unless there is some particular influence to the contrary, prices will naturally tend to fall. After a war, we have particular influences operating for a fall, and the long range comparisons, showing 30-year declines after two wars, are the more impressive from the fact that the entire comparison indicates a general rising tendency, which the post-war deflations overcame.

In many lines price comparisons are not so clearly indicative as they seem to be. The records show that in 1897 and 1898 steel bars and steel plates sold at about a cent a pound or even less. At the end of 1914 they sold at barely more than a cent a pound. The quality of plates furnished in 1897, however, would not have passed muster in 1914. The price of the 1914 plates was really lower, because the quality was higher. Wages were much higher, and leaner ore was being used, taken from lower deposits than were being drawn from in 1897, these factors being balanced by improved methods and equipment.

The general trend of manufactured products will have to be downward, when measured abstractly in terms taking cognizance of quality and wages. Improvements will be made which will be reflected in selling prices and each competitor must be alive to the fact.

Better Steel Rails

NEW testimony as to the advance American steel mills have made in the quality of rails comes from a representative of one of the country's largest systems. We refer to an address by C. B. Bronson, of the New York Central Lines, before the New York chapter of the American Society for Steel Treating at its December meeting and published in THE IRON AGE of Dec. 25. Two points stand out.

Only a few years ago transverse fissures were incessantly discussed as the cause of many rail failures. Today, while "the number of fissures has not decreased materially, the rate per 100 miles of open-hearth steel in service is now about half that of seven or eight years ago. The product of certain mills is almost immune from this type of failure." Here is a more definite measure than has been possible heretofore of the advance made in open-hearth furnace practice and an indication that the fissure is no longer the baffling mystery it was long thought to be.

That the Sandberg heat-treated rail gives "an increase in life which more than offsets the extra charge for treatment" is interesting testimony from the same address. It is evident that most of the alloy steels have thus far proved impractical for use as rails and that some form of carbon steel, simply heat-treated, will still be the standby. Unless there can be a better adjustment of the question of cost than has been possible thus far, there is little chance for rails of complicated composition. For a time it seemed likely that electric steel rails might find considerable use on lines running in the higher latitudes and on which winter breakages were excessive, but the war interrupted the tests of such rails which some roads had started to make in cooperation with one or two rail mills, and the tests appear not to have been resumed. In view of the great reduction in winter

failures which earlier investigations of electric steel rails promised, it would seem that the inquiry might well be taken up anew, for breakages, due to extremely low temperatures, have been exceedingly costly.

Should the English Copy Us?

TWO editorials in a recent issue of the English periodical, the *Engineer*, deplore the conservatism of the British industrial world which prevents the prompt adoption of advanced foundry methods and the installation of accurate pyrometers for temperature control. Each article draws a comparison between the English and American ways of making cast iron or of tempering cutlery or leaf springs, and in both the English manufacturer is advised to study American methods and profit by the example.

American industry should bow to this compliment with considerable humility. Doubtless the same spirit and imagination which 50 years ago urged the steel industry into the "Duquesne Revolution" has created in more recent years our marvelous machine builders. But it would be far too much to say that no relics of the dark ages survive in our steel mills, or that all of our forge and machine shops are scientifically controlled. In fact, it is doubtless true that scientific control in all departments—and this includes the foundry and the "heat-treat"—is a by-product of the demand for quantity production. Quantity production abhors a rising percentage of rejects; it demands materials of a high degree of workability and uniformity. It developed merely as a corollary that general production increased as the technical control became closer and closer. Hence, technical control.

We therefore cannot claim the widespread and intimate association between technical control and our metallurgical industry implied by our English friends, any more than we can say that all our shops are engaged in quantity production. A large part of our industry is still ruled by tradition and rule-of-thumb—a large part even of cutlery and leaf-spring manufacturers have not yet discovered just how much they are paying for the luxury of, let us say, the human-eye pyrometer. A smaller part know something about the situation, but may have become discouraged in the attempt to control the multitudinous factors which enter into production—especially the opposition of the older workmen.

But even this is not hopeless. One of our best American foundries struggled along for several years before proper relations were established between the technical superintendent and the working forces. It all started, of course, in the laboratory. Laboratory men worked out by experiment what seemed to be the best conditions for sound castings. The foundry superintendent knew all about this work and helped judge the result. One outstanding fact seemed to have been proved: that porosity in several types of castings was due not so much to poor molding as to high pouring temperatures. The logical solution was to pour colder metal.

But the expected improvement in output did not materialize! It seemed to be one of those cases where laboratory results could not be translated to the plant. However, the technical superintendent was not satisfied. After some detective work he found out that pyrometric control existed only when he was watching the furnaces.

Strong-arm methods might have been used, but a new foundry foreman would probably be as slow to believe that he didn't know when metal is too hot as the old one was. Consequently it was decided that a better way would be to "sell" the idea not only to the foremen but to the whole foundry.

So two of the laboratory men put on overalls and took possession of a part of one floor. They made molds for the most troublesome casting in production. They mixed and tempered their own sand. They molded according to printed instructions and not according to what they might have learned had they ever been apprentice molders. They used cores made in the laboratory. And they did not allow a drop of metal to be poured until it had cooled to the correct heat as measured by one of them with a pyrometer.

Skilled molders working nearby with the same pattern got 75 per cent perfect castings. The "laboratory chaps" got 90 per cent from the first and improved week by week.

Within three months the whole foundry was converted. Today the molders would be first to object if a ladle of metal arrived in their aisle without having first been checked for temperature. If the tests on their sand heaps are a few minutes late they are a little nervous and wonder what will happen to their next bonus check. Strict enforcement of laboratory instructions is done by the men themselves, rather than the plant police, because the whole organization really believes in technical control.

That's one of the main reasons why the products of this organization are sold the world over, in the face of all kinds of competition. If our English friends (and Americans, too) want to do some copying we recommend such a plant, one that is actually technically controlled.

Traffic Officials Await Filing of Reports

A meeting will be held shortly of the committee of iron and steel company traffic officials of the Pittsburgh and nearby districts to prepare a proposal to be submitted to the railroads for the purpose of securing some relief through a freight rate adjustment from conditions imposed by the elimination of Pittsburgh as a sole price point. Some of the members of the committee have not yet submitted reports to A. R. Kennedy, traffic manager Pittsburgh Steel Co., Pittsburgh, chairman of the committee, and a conference is delayed pending the filing of these reports.

The basic proposition to be submitted to the carriers will be in the form of a request for a through rate from the Pittsburgh territory into 14 States west of the Mississippi River, which now enjoy a commodity rate classification from Chicago. This, it is explained, will eliminate terminal charges at the gateways to the Western States and will result in a saving of from $2 to $3 a ton on shipments of steel from the Pittsburgh district into the West. This saving will enable the Pittsburgh iron and steel industries to compete for business in the Western States, which now is made difficult through the fact that the rates are a combination of local rates.

FAVORS LAW ENFORCEMENT

Judge Gary Speaks at New York Banquet—Will Be Guest of President Coolidge

A banquet to encourage the enforcement of the prohibition law was held at the Waldorf-Astoria, New York, Tuesday night, Jan. 6, under the auspices of the National Citizens' Committee of 1000 on Law Enforcement. The principal speakers were Judge Elbert H. Gary and William E. Dever, mayor of Chicago. Mayor Dever is not in favor of prohibition, but takes the position that the enforcement of law is absolutely necessary to preserve municipal government.

Judge Gary spoke at some length of people who do not believe in certain laws, including those who are in the habit of using alcoholic stimulants and naturally are disposed to believe that prohibition laws are too severe. In conclusion he said:

"We should openly and fearlessly discuss the merits of any law or all laws when the occasion demands. But no man has the right to violate or evade any law while it is in force, unless his honest, deliberate conscience compels him to do so on what he believes to be reasonable and moral ground; and then he must take his chances on the final decision of the regularly constituted authorities. If it turns out he was wrong in his opinion, he must subject himself to the penalty provided for violation.

"In comparison, the nations that conform to their duly enacted laws will prosper accordingly. Those who ignore or defy them will correspondingly shrink in worthy achievement."

Will Breakfast with the President

WASHINGTON, Jan. 6.—Judge Elbert H. Gary, as chairman, together with other distinguished members of the National Citizens' Committee of One Thousand on Law Enforcement, will take breakfast on Thursday morning of the present week with President Coolidge at the White House, and will submit to the Chief Executive resolutions adopted at the annual meeting of the committee recently in New York. The members of the committee also will be guests at a luncheon to be given for them by some of the leading citizens of Washington. At this luncheon Judge Gary will make an address on law enforcement. It is understood also that the address will outline a policy that will be submitted to the President, who desires to be acquainted with the progress made by the citizens' committee in its effort to bring about a more rigid enforcement of the law and to develop among the people a greater respect for the law.

Meeting of Quad City Foundrymen

H. W. Dietert, engineering department United States Radiator Corporation, Detroit, was the speaker at the December meeting of the Quad City Foundrymen's Association, held on Dec. 22 at the LeClaire Hotel, Moline, Ill. Mr. Dietert explained methods of testing moisture, permeability and strength of molding sand as developed by his company. These methods were demonstrated by means of testing apparatus, and the small amount of time necessary to complete the test was a source of surprise to all present. Mr. Dietert stated that the tests are not only necessary with new sand, but are even more important for the daily control of sand as used in the foundry. The cost of the apparatus together with the cost of making the tests is repaid many times over in the saving of castings. The loss in many types of castings has been reduced as much as 10 per cent, he said, and the average reduction in losses is at least 5 per cent. The application of the test is not limited to large foundries, but also pays for itself on floor work and bench work.

Lawrence W. Wallace, executive secretary American Engineering Council, Washington, was elected president of the Eye Sight Conservation Council of America at the annual meeting of the council, held in New York, Jan. 5. Guy A. Henry, New York, continues as general director. Research will be the major activity of the council during 1925.

Another New "Iron Age" Feature

BEGINNING with this issue and appearing weekly thereafter THE IRON AGE presents what is planned to constitute a thoroughly complete and continuous analysis of the iron and steel industry and its relation to the business cycle in so far as the statistical position is concerned.

The current installment, to be found on page 138, covers the trend of manufacturing costs. The next part, to appear Jan. 15, according to the calendar as at present drawn up, will discuss the condition of the iron and steel industry. Then will come in the following week a general résumé and forecast of the trend of general business and industry. The succeeding issue will take up the labor situation. The series will then be recurring.

Thus at monthly intervals there will be a concise contribution on a question affecting business in iron, steel and metal working. At one time it will be an analysis of the general situation with indications as to the outlook—this presented in that week in which the information necessary becomes available. Similarly once a month will appear the trend of manufacturing costs, and in another issue of each month the story in brief of the condition of the industry, and in another the facts regarding labor. Now and then, as five issue months allow, there will be scheduled a discussion on, say, the foreign situation.

For this business help, which promises to be unusually valuable, the services of Dr. Lewis H. Haney have been secured. He gave an introductory article on page 31 of the Annual Review Number of THE IRON AGE, Jan. 1. The equipment and experience which he brings to this work were told in connection with that article. Suffice it to say that THE IRON AGE is confident that this survey will give quickly and authoritatively what are the undercurrents and crosscurrents which need to be known properly to steer one's business ship. By eliminating the random collection of unrelated statistics, the survey will focus each time on a specific business and manufacturing problem and incidentally serve to widen the field in which business statistics ought to be accepted as useful working tools.

European Markets Quiet as Year Begins

British Prices Easier, but Ferromanganese Rises—Little Likelihood of International Steel Trust—German Works Well Occupied

(By Cablegram)

LONDON, ENGLAND, Jan. 5.

SOME of the Northeastern works have been reopened, but the Scottish plants in general continue inactive this week. Pig iron stocks consequently have increased and Cleveland prices are easier. The outlook is brighter and it is expected that more furnaces will be relighted. There is improved demand for hematite and some export sales have been made.

Foreign ore is now quiet. The works generally have placed their minimum requirements for the first half year. Bilbao-Rubio is held at 22s. 6d. to 22s. 9d. ($5.36 to $5.42), ex-ship Tees. Ferromanganese is firmer.

Finished steel is quiet, owing to the holidays. There is some export inquiry, but little business has been transacted.

[Exchange, at $4.76¾ per £ on Jan. 5, is at the highest level since 1916, and just above the "pegged" price of $4.76 7/16 during the war.]

Sheets and Tin Plate

Tin plate demand is improving, both domestic and for export, but business so far consists only of moderate sales effected. Some inquiries from Canada are up until June deliveries. Makers are not anxious to book far forward, owing to the possibility of an increase in the minimum price on account of increasing costs.

Galvanized sheets are quiet. Makers generally hold their prices firm but second hands, anxious to dispose of stocks, are quoting low figures.

Black sheets are dull and unchanged. There is some Far Eastern inquiry, but practically no business.

On the Continent of Europe

Continental markets are quiet, but somewhat disorganized by the holidays and by uncertainties as to prices. These in general are nominal, but there is a tendency toward higher levels. The threatened Belgian lockout has been averted.

It appears impossible for the Franco-German negotiations to result in an agreement by Jan. 10. Consequently a provisional arrangement may be made between those countries. Fritz Thyssen says that there is no likelihood of an international steel trust, but German ironmasters favor an international price agreement.

GERMAN MARKET STRONG

Prices of Semi-Finished and Finished Steel Increased—Works Full of Orders

(By Radiogram)

BERLIN, GERMANY, Jan. 5.—The market is very strong, particularly for blooms, billets and thin sheets, of which there is a shortage. The works are unable to meet the heavy demand and many have ceased booking orders. There is a big demand for foundry pig iron and for scrap. Average prices in gold marks per metric ton are as follows:

Blooms	119	($28.80 per gross ton)
Steel bars	132	(1.43c. per lb.)
Thin sheets	220	(2.39c. per lb.)
Best iron scrap	79	($19.12 per gross ton)
Steel scrap	83	($20.09 per gross ton)

Both the engineering and the Solingen (tool) branches report an improved domestic market, but exporting is dull. The railroad construction works are almost without orders, but there is a new demand for street car rails. The Krupp works have received a Russian order for 10,000 farm machines deliverable in the next two years. The steel trade journals predict that the improvement will continue.

British Iron and Steel Market Experiencing Year-End Quiet

LONDON, ENGLAND, Dec. 24.—Developments in iron and steel naturally have been somewhat scanty during the past two weeks, owing to the approach of the an-

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.76 per £1, as follows:

Durham coke, del'd	£1	5s.				$5.95	
Bilbao Rubio ore†	1	4				5.71	
Cleveland No. 1 fdy.	4	6				20.47	
Cleveland No. 3 fdy.	4	1				19.28	
Cleveland No. 4 fdy.	4	0				19.04	
Cleveland No. 4 forge	3	19½				18.92	
Cleveland basic	4	0				19.04	
East Coast mixed	4	7½				20.83	
East Coast hematite	4	19	to £5	0s.		23.56 to $23.80	
Ferromanganese	15	0	to 15	5		70.80 to 72.00	
•Ferromanganese	15	0	to 15	5		70.80 to 72.00	
Rails, 60 lb. and up	8	10	to 9	0		40.46 to 42.84	
Billets	7	0	to 8	0		33.32 to 38.08	
Sheet and tin plate bars, Welsh	8	7½				39.87	
Tin plates, base box	1	3½				5.59	
						C. per Lb.	
Ship plates	9	0	to 9	10		1.91 to 2.02	
Boiler plates	13	0	to 13	10		2.76 to 2.87	
Tees	9	2½	to 9	12½		1.94 to 2.05	
Channels	8	7½	to 8	17½		1.78 to 1.89	
Beams	8	2½	to 8	12½		1.73 to 1.83	
Round bars, ¾ to 3 in.	9	7½	to 9	17½		1.99 to 2.10	
Galv. sheets, 24 gage	17	0	to 17	10		3.61 to 3.72	
Black sheets, 24 gage	12	10	to 12	15		2.66 to 2.71	
Black sheets, Japanese specifications	15	5				3.24	
Steel hoops	10	15	and 12	10•		2.28 and 2.66•	
Cold rolled steel strip, 20 gage	16	0				3.40	

•Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)								
Belgium	£3	16s.	to	£3	17s.	$18.09	to	$18.33
France	3	16	to	3	17	18.09	to	18.33
Luxemburg	3	16	to	3	17	18.09	to	18.33
Basic pig iron: (a)								
Belgium	3	15				17.85		
France	3	15				17.85		
Luxemburg	3	15				17.85		
Billets:								
Belgium	5	5				25.00		
France	5	5				25.00		
Merchant bars:						C. per Lb.		
Belgium	5	17½				1.25		
Luxemburg	5	17½				1.25		
France	5	17½				1.25		
Joists (beams):								
Belgium	5	12½				1.18		
Luxemburg	5	12½				1.18		
France	5	12½				1.18		
Angles:								
Belgium	5	17½	to	6	0	1.25	to	1.28
⅛-in. plates:								
Belgium	7	0				1.49		
Germany	7	0				1.49		
¼-in. ship plates:								
Luxemburg	7	0				1.49		
Belgium	7	0				1.49		

(a) Nominal.

nual holidays and stocktaking periods, and it is unlikely that there will be much to say until the new year has well started. Business generally throughout the year, particularly in pig iron, has been far from good, the main stumbling block being inability to compete with the foreigner, owing to the high costs.

That manufacturers have done all in their power to cut their prices down, however, is clear from the fact that the price of Cleveland pig iron now stands at roughly 20s. a ton cheaper than it was at this time last year but, even at this level, foreign iron still can be imported at favorable rates. The number of furnaces in blast is only a small proportion, but traders are feeling some confidence of the future, and steps already are being taken to increase the output in the new year.

Semi-finished steel has been hard hit throughout by Continental competition, which has resulted in large quantities being imported, to the detriment of the British manufacturer. In the finished departments the ordinary merchant trade has been poor, export markets turning their attention far more to the cheaper product of other European countries, but some good Colonial Government contracts have been placed during the last 12 months with British manufacturers. Extensive programs of some of the railroad companies of this country will provide a good proportion of the work for a number of our plants. Prices, however, are still too much on the high side and have little chance of competing with other countries, for steel during the past year has not been any better than pig iron, the reductions amounting to only about 25s.

High Cost of Production

An interesting sidelight upon the cost of production in certain branches of the steel trade is shown by the chairman of Richard Thomas & Co., tin plate manufacturer, in the annual report. He states that whereas Continental tin plate and sheet bars have been selling at 33 per cent above the 1913 prices, the cost of such material from steel manufactured in this country has been over 60 per cent above pre-war. What is the reason for this difference? The reply is, the high cost of coal and transport in England. The present rate of cost of transport charge for assembling the raw materials necessary for the manufacture of tin plate, together with the conveying of tin plate to the port of shipment, amounts on an average to well over £2 10s. a ton. In conclusion he says:

"I do not think that at present we can do more than we are doing in our efforts to reduce the cost of manufacture and the cost of distribution of our products. How then can we look forward to any improvement in trade? My answer is that no trade in England can hope for improvement or hope to fight successfully foreign competition until the cost of coal and transport is reduced. Those two 'key' factors are throttling English trade."

Franco-German Commercial Negotiations

PARIS, FRANCE, Dec. 12.—Negotiations concerning the commercial agreement to be signed between France and Germany have been pursued in Paris for some time. As regards the metallurgical industry, these negotiations are of two orders which, although connected, are distinct from each other:

1.—Negotiations for the Regulation of the Customs Tariff

If, on Jan. 10, no agreement has been reached between the two countries, the duty rate on French iron and steel goods entering Germany will be raised by over 50 per cent above that of pre-war, resulting in prohibition of French products. The Germans contend that they are led to apply such regulations, as they should otherwise be obliged to grant the same preferential terms to other nations with whom they have signed or are ready to sign commercial treaties. To this the French reply that, owing to the importance of their "transforming" industry, the Germans have no interest to raise their customs tariff on raw and semi-finished products.

On the other hand, German producers of heavy metallurgy offer to buy a certain quantity of our raw and semi-finished goods (1,000,000 tons about, it is stated) in order to resell them to the German "transforming" or finishing plants. The French objection, on this point, is that it would mean the strict limitation of our exports to Germany and the abandonment of our direct trade relations with such firms.

This is how matters stand.

2.—Combine for Apportioning Output

Germany wishes us to enter an understanding formed in view of avoiding over-production and to proportion the iron and steel outputs to the needs of consumption. The French are quite willing to join such a combine, provided, however, that Great Britain, Belgium, Luxemburg and even other small producing countries such as Italy, Poland and Czecho-Slovakia will also take part in it.

Such a combination would forcibly mean the reconstitution of the national agreements—and steps have already been taken to that end—and also the regulation of prices to avoid the ruinous competition which now governs the export markets. Also, the projected treaty will have to settle definitively the details of the exchange of Ruhr coke for French ores between the two nations.

The negotiations were not pushed further, as the Germans asked to refer to their Government and to the industrialists whom they represent.

Czecho-Slovakian Iron and Steel Conditions Bad

PRAGUE, CZECHO-SLOVAKIA, Dec. 8.—Czecho-Slovakia's iron and steel industries, whether raw material or manufacturing, are in bad condition. In most other industrial branches business is fairly good; and the trade balance for January to October shows the satisfactory export surplus of 620,000,000 Czech crowns. The metal industries are the exception. Not only have they lost the temporary boom market created by the Ruhr occupation, but they also are feeling German competition more severely every day. The concerns are producing at much below full capacity. This is true of smelting concerns, steel mills and rolling mills, and most of all in machinery. To Russia has been sold a certain quantity of electrical and farm machinery, but in general the export market is dead.

The recent Czecho-Austrian commercial treaty grants Czecho-Slovakia reductions of the Austrian maximum duties on iron; but not much advantage is expected from this, as already since February there has existed a cartel agreement between the iron and steel interests in both countries, which guarantees collaboration independently of duties. The real question for both countries is Germany. The Czech trade journals express the apprehension that if a steel agreement is come to between Germany and France, in connection with the commercial treaty negotiations now proceeding in Paris, all the smaller steel-producing countries, and with them Czecho-Slovakia, Austria and Poland, will suffer badly.

As result of the German abandonment of the Ruhr struggle, Czecho-Slovakia's coal industry has lost a market. Last January, coal output reached 1,400,000 tons against a monthly average of 1,190,000 tons in 1913; in the last recorded month of 1924 production

fell to 1,110,000 tons. The lignite industry has come through relatively well. Coke production is considerably less than in the first half of 1924, notwithstanding which the quantity of unsold coke in the Ostrau district has increased rapidly. In 1923 the coal production was 11,625,000 tons, against 9,906,000 tons in 1922 and 14,236,000 tons in 1913.

Pig Iron Production and Exports

An official report for 1923 states that of 27 blast furnaces in the republic, an average of 11 were in operation, against 6 in 1922. The pig iron production was 750,000 tons, or 47 per cent of full production capacity, against 345,000 tons in 1922. The increase was mainly due to the shortage of iron induced by the Ruhr troubles. Germany in 1923 bought 138,000 tons of Czech pig iron, against only 19,690 tons in 1922. Altogether Czecho-Slovakia's pig exports rose from 58,000 tons in 1922 to 193,400 tons in 1923.

The effect of the Ruhr troubles on steel production was similar. Steel output rose from 640,000 tons in 1922 to 1,000,000 tons in 1923, and thereby reached 80.8 per cent of the 1,237,021 tons produced in 1913. Output of rolling mill products in 1923 was estimated at 1,300,000 tons. Export of semi-finished materials and rolling-mill products totaled 359,850 tons, against 120,650 tons in 1922, Germany's purchases being 175,285 tons against only 16,172 tons in 1922. These figures sufficiently explain how the resumption of German smelting and rolling on the Ruhr has completely demoralized the Czech market. Production figures for this year, when available, will show a sharp setback.

SYNDICATES DOMINATE GERMANY

German Iron Prices Stiff and Trade Brisk—Franco-German Negotiations Continuing

BERLIN, GERMANY, Dec. 17.—Negotiations about a Franco-German trade agreement, influenced largely by the probable formation of a European syndicate in the iron industry, have been postponed on account of a conference at Cologne of representatives of the iron industries of the different countries. As the privilege of free importation of Alsatian iron and steel into Germany, embodied in the Versailles treaty, terminates on Jan. 10, there would be the possibility that Germany might levy heavy import taxes on French iron material. This would mean French exclusion from the German market, especially in the South, which is geographically well situated for the French iron producers.

The French are anxious also to export iron ore from the mines in Normandy to Germany, and will probably ask for a certain contingent of French ore being imported into Germany. During the last few months the German works have used little French ore, as Spanish and Swedish ore is cheaper. In October Swedish exports of iron ore totaled 504,000 tons, against 237,000 tons during the same month last year. The increase is due mainly to larger shipments to Germany, which have reached almost the pre-war figure.

Cologne Conference Discusses Tariff

The main points under discussion at Cologne are an international agreement for the control of production and sales of iron products, certain concessions for the import of German finished iron goods into France, and the abolition of the free imports of Alsatian iron products into Germany. The German Iron Syndicate would, in exchange, undertake to import a certain contingent of French iron and steel if the French producers refrain from supplying the German market directly. The last point would be in direct opposition to the interest of the engineering industry, as the German Syndicate probably would hold inland prices at a level equal to foreign prices plus import tax. Alsatian material would be prevented from influencing home prices, which would be detrimental to the iron consumers.

It already is reported from Paris that German representatives declared that the intended tariff revision would bring a 50 per cent increase in the import tax on iron. Probably this was said by the experts delegated by the iron producers and is significant of their attitude in the question of imports. The *Frankfurter Zeitung* says: "The ironmasters naturally defend the existing tax and work for its increase, but it is contrary to the interest of German industries in general that only the parties directly interested discuss the matter and the government simply sanctions the agreement arrived at between them. In fact, the latest reports from Paris should induce iron consumers to be more active in defending their interests."

Several associations of manufacturers of finished goods already have declared themselves against high import taxes.

Syndicate Sentiment Grows

It seems that the British iron producers gradually are giving up their opposition to the formation of a European steel syndicate. Belgian and Italian ironmasters also are showing a large interest in it, and it can be said that there is generally a desire in all the iron producing countries to come to some sort of understanding, which is of great importance to the whole of Europe and may have also a considerable influence on oversea markets.

A new syndicate formed in the German iron industry by the producers of semi-finished material is to start work on Jan. 1, 1925. Only the Gutehoffnungshütte has not signed the agreement yet and negotiations with this firm continue. This is a sales syndicate with fixed quotas for every member, which also fixes prices in accordance with market conditions. Certain steel specialties are sold by the firms themselves and the materials used up in the works of the members are not included in the agreement. Negotiations for establishing syndicates for bar iron, girders, wire and plates have not produced a definite result.

Heavy Demand Stiffens Prices

During the last few days iron prices have advanced further. There is an unabated demand and traders and consumers are taking on stock for the expected revival of building activity next spring. Many consumers who have been holding back are replenishing their stocks now for fear of further advances, as prices are showing an upward tendency. The remarkably strong demand seems also largely due to recent progress being made in the formation of syndicates; as some of the works have extensive sales organizations, the formation of sales syndicates meets with considerable difficulties. Present quotations are about as follows, in marks per metric ton and with American equivalents per gross ton or per pound:

Blooms	108	$26.14	Plates, 1 to 3 mm. (No. 19½ to No. 11½ gage)	205	2.22c.
Billets	115	27.83			
Sheet bars	122	29.52			
Wire rods	145	35.09			
Bar iron	130	1.40c.	Plates below 1 mm.	220	2.39c.
Structural shapes	122	1.32c.			
Universal iron	135	1.46c	Wire, drawn, bright	175	1.89c.
Hoop iron	155	1.67c.			
Sheets, heavy	150	1.62c	Wire, drawn, galvanized	215	2.32c.
Sheets, medium	175	1.89c.			

Scrap demand also has increased. Owing to the high freight rates it is almost impossible to bring material from a great distance and some firms have only small stocks. As soon as a perceptible demand is noticeable prices leap up. Present quotations are about 73 marks per ton ($17.67) for steel scrap, 70 marks ($16.94) for solid scrap, 60 marks ($14.52) for chips and 77 marks ($18.63) for cast iron scrap. Iron ore prices show a declining tendency. Owing to the rise in the exchange value of the franc the price of foundry iron No. 3, Luxemburg quality, has been increased by 3.50 marks per ton to 74 marks ($17.91) at the frontier, which is equal to 315 francs per ton.

The Siegerland thin plate mills have booked many

orders lately, both for home and foreign account. They generally stipulate 8 weeks for delivery and have orders for about three months. There is considerable export demand and more than £9 per ton, f.o.b. Rotterdam, has been realized.

The Saar iron industry during the last few weeks has booked many German orders and about 75 per cent of the production is going to Germany. The main reason is the desire to get as much material as possible into Germany before Jan. 10, when the free import ceases, but many German orders have been given lately for delivery after that date, which is a sign that it is believed that no German customs barrier will be erected or that the duty will be small. Prices are therefore stiff.

BELGIAN PRICES GO DOWNWARD

End-of-Year Quietness and Price Resistance of Buyers Make Business Slow

ANTWERP, BELGIUM, Dec. 10.—Prices per metric ton, f.o.b. Antwerp, may be indicated as follows:

	Fr.	Per Lb.
Bars	555 or	$27.75 or 1.26c.
Joists (beams)	535 or	26.75 or 1.21c.
Rods	640 or	32.00 or 1.45c.
Corrugated bars	670 or	33.50 or 1.52c.
Hoops	780 or	39.00 or 1.77c.
Cold rolled steel hoops	1,100 or	55.00 or 2.49c.
Drawn steel squares	1,075 to	53.75 or 2.44c.
Drawn steel, rounds	1,050 or	52.50 or 2.39c.
Drawn steel, hexagons	1,125 or	56.25 or 2.56c.
Spring steel	1,030 or	51.50 or 2.34c.
Commercial iron No. 2	565 or	28.25 or 1.28c.
Commercial iron No. 3	585 or	29.25 or 1.32c.
Commercial iron No. 4	615 or	30.75 or 1.39c.
Thomas sheets 0.5 mm. (No. 25½ gage)	1,275 or	63.75 or 2.89c.
Thomas sheets 1 mm. (No. 19½ gage)	1,150 or	57.50 or 2.61c.
Thomas sheets 2 mm. (No. 14 gage)	880 or	44.00 or 1.99c.
Thomas sheets 3 mm. (No. 11½ gage)	730 or	36.50 or 1.65c.
Thomas sheets 5 mm. (No. 6½ gage)	675 or	33.75 or 1.53c.
Galvanized sheets 0.5 mm	2,250 or	112.50 or 5.11c.
Galvanized sheets 1 mm	1,650 or	82.50 or 3.74c.
Polished sheets, average price	1,600 or	80.00 or 3.63c.
Steel bands	700 or	35.00 or 1.59c.
Wire, galvanized (basis)	1,100 or	55.00 or 2.49c.
Wire, barbed (basis)	1,250 or	62.50 or 2.83c.
Wire, plain (basis)	850 or	42.50 or 1.93c.
Wire, annealed (basis)	900 or	45.00 or 2.04c.
Wire nails (basis)	850 to	42.50 or 1.93c.
Billets, soft Thomas steel	510 to	25.50
Blooms, soft Thomas steel	490 to	24.50
Largets, soft Thomas steel	530 or	26.50
Wire rods	630 or	31.50

Generally speaking, the steel and iron market is weak. The downward tendency of last week is getting confirmed. Only small business is done, so that several makers are disposed to book offered orders, even with further concessions of prices. Only a small number of works are fully booked for two to three months and in consequence buyers, although not numerous, insist upon lower quotations. In general one may rely on a reduction of minimum 2s. 6d. per ton in the last week's prices.

Business was especially difficult in steel commodities. Buyers do not seem disposed to order at ruling prices. In consequence practically no business is developing and an incertitude of prices overcomes the market. To this lack of movement one has to add the general and common quietness of the end of the year.

Of course some foreign markets are in a better position, even firm; that is why the somewhat unexpected decline in prices on our market seems very strange. General quotations for bars are now, at maximum, £5 17s. 6d. per ton, f.o.b. Antwerp, this being at the same time the price quoted by Luxemburg and Lorraine. Even this price is reported to have been accepted by some makers as an all-around price, without applying the usual extras—of course for good specifications and not too small a quantity. Beams were offered at $26 and $26.75, f.o.b. Antwerp. Quotations for Belgian consumption ran about 10 to 15 fr. higher, but not more.

A large number of buyers exist for semi-finished products. On the other side, makers are better provided with work for this class of materials and therefore the market is much firmer than for other commodities. Notwithstanding this, the offers made, especially for England, become lower and lower. This explains the nearly total absence of business. Exporters offer only £5 4s. for billets, i.e., about $24.50, a price which is not yet accepted. Business for largets (slabs) is not practicable above £5 6s. to £5 8s., which is found too low by the sellers.

As seen in the list above, prices for iron also are lower. This department is calm, but the makers' situation is not so bad, as most of them got the opportunity to book good orders during the last month, when prices were higher and favorable for them.

Important orders have been placed for heavy sheets. Prices therefore are maintained even about £7, i.e., $33 per 2240 lb., a quotation which proportionally is much higher than for the previous items. Business is satisfactory, while makers are still full of orders for two to three months. Therefore the tabulated prices may really be considered strict minimums.

Prices for high-phosphoric pig iron have been affected. The market is far from weak but, owing to competition from Luxemburg and France, quotations came down to 360 fr. and 365 fr., delivered at consumers' works or f.o.b. Antwerp. The demand is large and it is reported that at this price of $18 f.o.b. Antwerp good business has been done. Delivery before the end of January is unobtainable, this showing that makers have still important quantities to supply. Semi-phosphoric pig iron is quoted 390 fr. per metric ton, f.o.b. Antwerp, i.e., $19, for 2.5 to 3 per cent Si.

The wage question again provokes new difficulties. Work people, on account of dearer living, ask for higher salaries, while makers claim to be unable to meet them because obtainable selling prices do not allow an increase in cost of production. Workmen, therefore, started partial strikes in certain works and certain parts of the country. In reply the managers announced a general lockout, after a fortnight's notice. In these circumstances, if difficulties are not removed, the builders' trade to begin with (including founders and nail manufacturers) would come to a standstill on Jan. 1.

Pig Iron Prices Stronger in Canada

TORONTO, ONT., Jan. 5.—While the Canadian pig iron market has not recovered from the recent holiday season and the demand for iron has been practically at a standstill for the past couple of weeks, prices have been showing a steadily stronger tendency and a further advance of $1 per ton has gone into effect. This new advance makes the total increase in the past six weeks one of $3.50 per ton, with the prevailing pig iron price in Canada as follows: No. 1 (2.25 to 2.75 silicon), $28.80; malleable, $28.80; No. 2, (1.75 to 2.25 silicon), $28.30, Toronto. With the difference in freight charges between Toronto and Montreal the price in the latter district is now No. 1 and malleable, $31.30; No. 2, $30.80. A large number of Canadian melters have already covered for first quarter requirements with a few having placed contracts for as far ahead as the second quarter, but local blast furnace representatives do not appear anxious to take business as far as second quarter and consequently are not pushing sales on this account. The spot demand fell off during the recent holiday season, but prospects are good for a speedy resumption of business and during the latter part of this week several small tonnage spot orders have been booked.

The Chicago, Milwaukee & St. Paul Railway Co.'s coal dock at Escanaba, Mich., which has been under lease to the Central Coal Co. of Milwaukee since its establishment, has been purchased by the Cleveland-Cliffs Iron Co., Cleveland. The dock has been operated intermittently for several years and requires extensive repairs and replacements, which will be made early in the spring. The present capacity of 100,000 tons will be somewhat enlarged. The Cleveland company intends not only to supply its mines near Escanaba with coal, but enter the wholesale coal trade of the Upper Peninsula.

DECEMBER IRON OUTPUT

Increase Over November 11,883 Tons Per Day—Year's Total 31,108,300 Tons

Net Gain of 23 Furnaces, with 27 Blown In and 4 Shut Down

A sharp increase was recorded in the December production of blast furnaces—again in the daily rate of 11,883 tons, or about 14 per cent over November. This is a little larger than the October increase of 11,465 tons per day over September. The expansion in active furnaces was the same as in November.

The production of coke pig iron for the 31 days in December amounted to 2,961,702 gross tons or 95,539 tons per day as compared with 2,509,673 tons or 83,656 tons per day for the 30 days in November. This is an increase of 452,029 tons or 11,883 tons per day. The December total brings the 1924 output to 31,108,302 tons of coke pig iron as compared with 40,059,308 tons in 1923.

There were 27 furnaces blown in and only 4 blown out or banked, the net gain being 23 or the same as in November and September. The October net gain was 9 furnaces. Since the tide turned late in July, 84 furnaces have been blown in. The capacity of the 228 furnaces active on Jan. 1 is estimated at 98,380 tons per day contrasting with 89,100 tons per day for the 205 furnaces active on Dec. 1. Of the 27 furnaces blown in last month 15 were Steel Corporation furnaces, 9 were independent steel units and only 3 were merchant stacks.

The ferromanganese output in December was the largest since April at 21,220 tons. The production of spiegeleisen was 5284 tons.

Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months from December, 1923, is as follows:

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant	Total
December, 1923	69,921	24,304	94,225
January, 1924	73,368	24,016	97,384
February	83,126	22,900	106,026
March	86,276	25,533	111,809
April	82,101	25,680	107,781
May	62,176	22,182	84,358
June	50,237	17,304	67,541
July	43,353	14,224	57,577
August	45,591	15,284	60,875
September	50,312	18,130	68,442
October	59,952	19,955	79,907
November	63,230	20,426	83,656
December	76,682	19,857	95,539

The figures for daily average production, beginning with January, 1918, are as follows:

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1918—Gross Tons

	1918	1919	1920	1921	1922	1923	1924
Jan.	77,799	106,525	97,264	77,945	53,063	104,181	97,384
Feb.	82,825	105,006	102,720	69,187	58,214	106,935	106,026
Mar.	103,648	99,685	108,900	51,468	65,675	113,673	111,809
Apr.	109,607	82,607	91,327	39,768	69,070	118,324	107,781
May	111,175	68,002	96,312	39,394	74,409	124,764	84,358
June	110,793	70,495	101,451	35,494	78,701	122,548	67,541
July	110,354	78,340	98,921	27,889	77,592	118,656	57,577
Aug.	109,341	88,496	101,529	30,780	58,586	111,274	60,875
Sept.	113,942	82,932	104,310	32,850	67,791	104,184	68,442
Oct.	112,482	60,115	106,212	40,215	85,092	101,586	79,907
Nov.	111,802	79,745	97,830	47,183	94,990	96,476	83,656
Dec.	110,762	84,944	87,222	53,196	99,577	94,225	95,539
Year	105,496	83,789	99,492	45,325	73,645	109,713	85,075

Among the furnaces blown in during December were the following:

C furnace at the Coatesville plant of the Bethlehem Steel Corporation and No. 3 Swede furnace in the Schuylkill Valley; three Edgar Thomson and one Clairton furnace of the Carnegie Steel Co., one Eliza and one Aliquippa furnace of the Jones & Laughlin Steel Corporation, No. 1 Monongahela furnace of the National Tube Co., one Midland furnace of the Pittsburgh Steel Co. and one Monessen furnace of the Pittsburgh Steel Co., all in the Pittsburgh district; one Newcastle and one Farrell furnace of the Carnegie Steel Co. and the Stewart furnace in the Shenango Valley; L furnace at the Cambria plant of the Bethlehem Steel Corporation in western Pennsylvania; one Ashland furnace (blown in in November) of the American Rolling Mill Co. in Kentucky; No. 1 Bellaire furnace of the Carnegie Steel Co. in the Wheeling district; No. 2 Hubbard furnace of the Youngstown Sheet & Tube Co., No. 1 Haselton furnace of the Republic Iron & Steel Co. and the Cherry Valley furnace in the Mahoning Valley; one Central furnace of the American Steel & Wire Co. in northern Ohio; the Belfont furnace in southern Ohio; one Joliet and three South Chicago furnaces of the Illinois Steel Co. and two Gary furnaces in the Chicago district.

Among the furnaces blown out or banked during December were the following:

Lebanon Valley furnace in the Lebanon Valley; F furnace at the Sparrows Point plant of the Bethlehem Steel Corporation in Maryland; No. 4 Ohio furnace of the Carnegie Steel Co. in the Mahoning Valley, and No. 1 Ensley furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for December and the three months preceding.

Pig Iron Production by Districts, Gross Tons

	Dec. (31 days)	Nov. (30 days)	Oct. (31 days)	Sept. (30 days)
New York	182,742	165,594	145,930	101,702
New Jersey	.....	.....	.....	.....
Lehigh Valley	78,909	80,634	79,473	63,458
Schuylkill Valley	70,843	51,786	51,966	51,927
Lower Susquehanna and Lebanon Valleys	39,761	36,321	37,157	27,233
Pittsburgh district	638,237	528,589	519,015	437,864
Shenango Valley	120,803	88,939	86,279	84,018
Western Pa.	140,027	119,099	116,730	82,639
Maryland, Virginia and Kentucky	84,349	65,389	66,896	41,470
Wheeling district	120,185	101,862	94,976	80,465
Mahoning Valley	300,629	240,141	222,344	195,292
Central and Northern Ohio	298,951	263,734	265,020	243,011
Southern Ohio	37,326	32,093	34,722	15,542
Illinois and Indiana	502,805	388,534	390,556	302,112
Mich., Minn., Mo., Wis., Colo. and Utah	108,717	106,536	102,839	92,764
Alabama	230,760	233,124	250,472	221,190
Tennessee	6,658	7,298	12,752	12,487
Total	2,961,702	2,509,673	2,477,127	2,053,264

Capacities in Blast Jan. 1

The following table shows the number of furnaces in blast Jan. 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast Dec. 1:

Coke and Anthracite Furnaces in Blast

Location of Furnaces	Total Stacks	Jan. 1 In Blast	Jan. 1 Capacity per Day	Dec. 1 In Blast	Dec. 1 Capacity per Day
New York:					
Buffalo	22	15	5,845	15	5,750
Other New York	5	0	....	0	....
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	6	2,375	6	2,500
Spiegel	2	1	170	1	160
Schuylkill Valley	15	7	2,460	6	2,100
Lower Susquehanna	9	2	1,005	2	925
Ferromanganese	1	1	65	1	55
Lebanon Valley	4	1	200	1	190
Ferromanganese	2	0	....	1	40
Pittsburgh District	55	45	21,600	37	18,000
Ferro and spiegel	4	3	300	2	295
Shenango Valley	17	11	4,600	8	3,300
Western Pa.	22	11	4,595	10	4,350
Ferro and spiegel	2	0	....	0	....
Maryland	5	3	1,765	4	1,900
Ferromanganese	1	1	120	1	100
Wheeling District	14	10	4,190	9	3,800
Ohio:					
Mahoning Valley	28	19	9,000	17	8,520
Central and Northern	25	18	9,500	17	9,300
Southern	14	5	1,510	4	1,370
Illinois and Indiana	42	32	17,425	26	14,500
Mich., Wis. and Minn.	12	6	2,340	6	2,400
Colo., Mo. and Utah	6	3	1,165	3	1,150
The South:					
Virginia	17	2	285	2	200
Ferromanganese	1	1	85	1	85
Kentucky	7	1	350	0	0
Alabama	39	21	7,125	22	7,725
Ferromanganese	1	1	90	1	85
Tenn., Ga. and Texas	15	2	215	2	200
Total	403	228	98,380	205	89,100

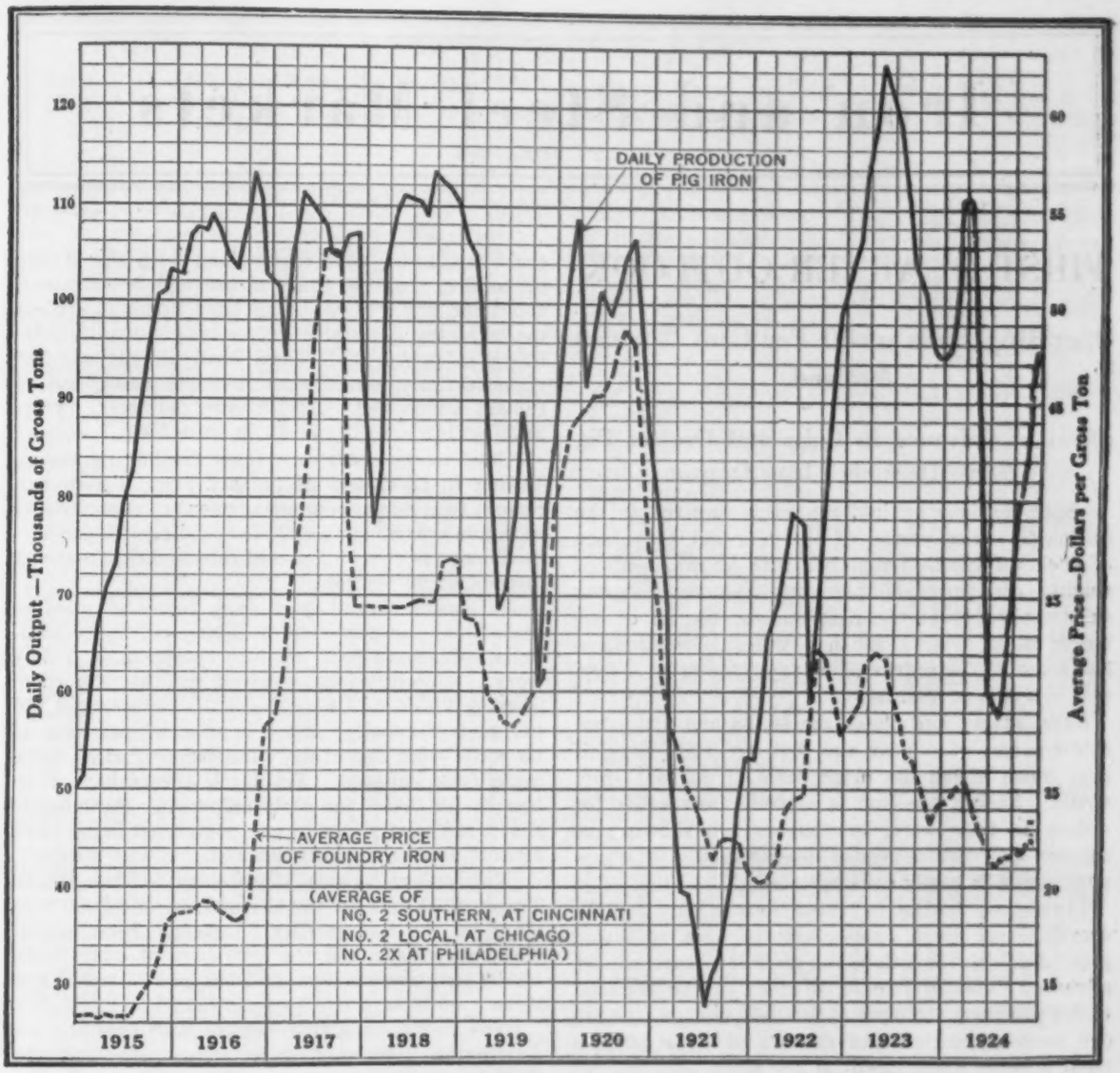


Diagram of Pig Iron Production and Price

Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the foregoing totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

Production of Steel Companies—Gross Tons

	Total Production		Spiegeleisen and Ferromanganese 1923		1924	
	1923	1924	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,479,727	2,274,005	19,358	12,056	20,735	7,948
Feb.	2,259,154	2,410,658	21,282	3,657	22,405	9,870
Mar.	2,724,305	2,674,565	20,730	13,832	22,351	13,796
Apr.	2,704,360	2,463,027	20,808	7,440	23,580	4,240
May	2,976,892	1,927,461	19,568	9,533	14,993	9,336
June	2,727,208	1,507,110	19,717	18,289	20,049	9,405
½ year	15,871,646	13,256,826	121,564	64,807	124,113	54,595
July	2,752,738	1,343,952	26,493	12,876	14,367	15,328
Aug.	2,680,851	1,413,314	22,045	5,586	10,718	8,010
Sept.	2,363,967	1,509,360	23,206	4,478	13,263	5,033
Oct.	2,394,922	1,858,502	20,015	15,931	7,780	10,047
Nov.	2,170,567	1,896,886	14,839	16,783	13,448	8,835
Dec.	2,167,563	2,377,141	18,069	10,124	21,220	5,284
Year	30,402,254	23,656,981	246,231	130,585	204,909	107,132

Production and Price Chart

The fluctuations in pig iron production from 1915 to the present time are shown in the accompanying chart. The figures represented by the heavy line are those of the daily average production by months, of coke and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1920—Gross Tons

	1920	1921	1922	1923	1924
Jan.	3,015,181	2,416,292	1,644,951	3,229,604	3,018,890
Feb.	2,978,879	1,937,257	1,629,991	2,994,187	3,074,757
Mar.	3,375,907	1,595,522	2,035,920	3,523,868	3,466,086
Apr.	2,739,797	1,193,041	2,072,114	3,549,736	3,233,428
May	2,985,682	1,221,221	2,306,679	3,867,694	2,615,110
June	3,043,540	1,064,833	2,361,028	3,676,445	2,026,221
½ year	18,138,986	9,428,166	12,050,683	20,841,534	17,434,492
July	3,067,043	864,555	2,405,365	3,678,334	1,784,899
Aug.	3,147,402	954,193	1,816,170	3,449,493	1,887,145
Sept.	3,129,323	985,529	2,033,720	3,125,512	2,053,264
Oct.	3,292,597	1,246,676	2,637,844	3,149,158	2,477,127
Nov.	2,934,908	1,415,481	2,849,703	2,894,295	2,509,673
Dec.	2,703,855	1,649,086	3,086,898	2,920,982	2,961,702
Year*	36,414,114	16,543,686	26,880,383	40,059,308	31,108,302

*These totals do not include charcoal pig iron. The 1923 production of this iron was 251,177 tons.

Building permits were issued in St. Louis during 1924 for improvements of the estimated cost of $39,841,639, against $41,443,755 in 1923, a decrease of $1,602,116. The largest permit was for the Bell Telephone Building, $5,000,000.

Iron and Steel Markets

FIRST QUARTER OUTLOOK

Operating Basis of 80 Per Cent Appears Assured

Effect of Advance in Coke and Ore on Pig Iron—December Iron Output

Specifications against contracts received in the ordinarily quiet period of the year-end have been of such volume that together with known needs of regular consumers 80 per cent operations appear fully assured over the first quarter for all of the larger mills making finished steel. The situation has some of the marks of a transition from a buyers' to a sellers' market.

Bars, shapes and plates are $6, $8 and $10 a ton below prices of a year ago, but are fully one-half that much above the price basis of current shipments. Sellers are not so actively canvassing for orders as they were, but buyers are showing no concern over future needs. The relatively little new purchasing is easily consummated.

Inventory taking is responsible in part for the semblance of quiet, particularly in wire, nails and pipe. Adding strength to the price structure are the advanced dates of release of much of the material under contract, attempts to increase the tonnage under such protection and rumors of little surplus labor seeking employment at the mills.

The basis of second quarter prices has entered definitely into market calculations. Purchasers agree as to the generally firm price outlook, but do not expect the makers to allow the situation to get out of hand. Signs are that the next few weeks will be occupied principally in gaging the continued relation of supply and demand.

The country's production of pig iron in December was 2,961,702 tons, or 95,539 tons a day. This represents a daily gain of 11,883 tons over November, in which the output was 2,509,673 tons. On Jan. 1 there were 228 furnaces active, showing a net gain of 23 over the number in blast on Dec. 1 and the rate of production on Jan. 1 was 98,380 tons a day. A year ago pig iron was being made at the rate of 94,265 tons a day and a month ago 89,100 tons.

Including charcoal iron, the output of 1924 was about 31,300,000 tons, or 22 per cent off from the production of 1923.

Stacks of steel making companies made 76,682 tons a day, a daily gain of 13,452 tons over November, but merchant furnaces, producing 18,857 tons, showed a daily loss from November of 1569 tons. A total of 27 furnaces went on the active list in the month, 15 of them of the United States Steel Corporation, and four were blown out, two of them Steel Corporation stacks.

With the cost of making pig iron increased by more than $1 per ton by the advance of wages in the Connellsville coke region, and with the strong probability that the price of ore will be advanced about 80c. per ton, owners of blast furnaces are expected to try for higher prices on pig iron for delivery after April 1. Some have already marked up quotations, but in most districts ruling prices remain unchanged. At Chicago, however, prices have again risen 50c., or $3.50 since Nov. 1.

Steel works operations show further increases. Taking in all classes of finished steel, Pittsburgh reports fully 80 per cent engagement of capacity and in ingots over 85 per cent. The leading independent in Chicago is at a 95 per cent rate and the foremost interest at 90 per cent.

In sheets, slower than many forms of steel to respond to the new market influences, some additional mills have been put into operation in Valley works. Specifications received by the American Sheet & Tin Plate Co. in December represented 150 per cent of capacity and last week 85 per cent of its mills were operating. Independent mills were more fully engaged. Yet black sheets have been bought for 3.50c. for early shipment. Automobile sheets are relatively slow, motor cars not being built against uncertain future demand.

Rail orders include 13,000 tons for the Grand Trunk, 6000 tons for the Clover Leaf and 2000 tons more for the Kansas City Southern. Bookings of track accessories call for 5000 tons of angle bars, 10,000 tons of tie plates and 3000 tons of spikes and bolts.

The Baltimore & Ohio bought 5000 cars and the Burlington 2000, and expectations are that the 70,000 tons of rolled steel and 11,000 tons of axles will go to Chicago mills. The Lackawanna and New York Central each have asked for prices on 1000 cars.

The continued rise in pig iron is reflected in THE IRON AGE pig iron composite, which is now $22.25 per gross ton, against $22.17 last week. Since the movement started two months ago the advance has been $3.04, or 16 per cent.

THE IRON AGE finished steel composite price is unchanged from 2.560c. per lb. last week.

Pittsburgh

Pig Iron Makers Will Try to Obtain Higher Prices for Second Quarter

PITTSBURGH, Jan. 6.—As steel buyers very generally covered their first quarter requirements in their big commitments in November and early December, business now is running to specifications rather than orders. Specifications against orders on the mill books have been very heavy in the past few weeks, and the high rate of steel production attained in December promises to be greatly exceeded in the present month. The Carnegie Steel Co. has put on two additional blast furnaces, bringing its total active units to 43 of its 58 furnaces. The Pittsburgh Steel Co., the Republic Iron

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Jan. 6, 1925	Dec. 29, 1924	Dec. 9, 1924	Jan. 8, 1924
No. 2X, Philadelphia‡	$25.01	$25.01	$24.51	$24.26
No. 2, Valley Furnace†	22.00	22.00	20.50	22.00
No. 2, Southern, Cin'ti†	24.05	24.05	24.05	25.05
No. 2, Birmingham, Ala.†	20.00	20.00	20.00	21.00
No. 2 foundry, Chicago*	**24.00**	23.50	22.00	23.50
Basic, del'd, eastern Pa.	**24.25**	23.50	23.00	23.25
Basic, Valley furnace	21.50	21.50	20.50	21.00
Valley Bessemer del. P'gh.	24.26	24.26	23.26	24.76
Malleable, Chicago*	**24.00**	23.50	23.00	23.50
Malleable, Valley	22.00	22.00	20.50	22.00
Gray forge, Pittsburgh	23.26	23.26	21.76	23.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.15
Ferromanganese, furnace	110.00	110.00	105.00	109.00
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	37.00	37.00	35.50	40.00
O.-h. billets, Pittsburgh	**38.00**	37.00	35.50	40.00
O.-h. sheet bars, P'gh.	**39.00**	38.00	37.00	42.50
Forging billets, base, P'gh.	42.50	42.50	42.50	45.00
O.-h. billets, Phila.	41.67	41.67	41.67	45.17
Wire rods, Pittsburgh	48.00	48.00	48.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.00	2.00	2.00	2.35
Light rails at mill	1.80	1.80	1.80	2.25
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, eastern Pa. mill	2.10	...	...	...
Iron bars, Chicago	2.00	2.00	2.00	2.40
Steel bars, Pittsburgh	2.10	2.10	2.10	2.40
Steel bars, Chicago	2.10	2.10	2.10	2.50
Steel bars, New York	2.44	2.44	2.44	2.74
Tank plates, Pittsburgh	2.00	2.00	1.90	2.50
Tank plates, Chicago	2.20	2.20	2.20	2.60
Tank plates, New York	2.34	2.34	2.24	2.74
Beams, Pittsburgh	2.10	2.10	2.10	2.50
Beams, Chicago	2.20	2.20	2.20	2.60
Beams, New York	2.34	2.34	2.34	2.74
Steel hoops, Pittsburgh	2.50	2.50	2.50	3.00

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Jan. 6, 1925	Dec. 29, 1924	Dec. 9, 1924	Jan. 8, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28 P'gh.	3.60	3.60	3.50	3.75
Sheets, black, No. 28, Chicago dist. mill	3.70	3.70	3.70	...
Sheets, galv., No. 28, P'gh.	4.75	4.75	4.75	4.90
Sheets, galv., No. 28, Chicago dist. mill	4.85	4.85	4.85	...
Sheets, blue, 9 & 10, P'gh.	2.70	2.70	2.70	3.00
Sheets, blue, 9 & 10, Chicago dist. mill	2.80	2.80	2.80	...
Wire nails, Pittsburgh	2.85	2.85	2.85	3.00
Wire nails, Chicago dist. mill	2.95	2.95	2.95	...
Plain wire, Pittsburgh	2.60	2.60	2.60	2.75
Plain wire, Chicago dist. mill	2.70	2.70	2.70	...
Barbed wire, galv., P'gh.	3.55	3.55	3.55	3.80
Barbed wire, galv., Chicago dist. mill	3.65	3.65	3.65	...
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	**$22.00**	$21.50	$19.50	$20.00
Carwheels, Philadelphia	19.50	19.50	19.00	20.00
Heavy steel scrap, P'gh.	22.00	22.00	21.50	20.00
Heavy steel scrap, Phila.	*20.00*	21.00	19.50	17.50
Heavy steel scrap, Ch'go.	19.75	19.75	18.25	16.75
No. 1 cast, Pittsburgh	19.50	19.50	19.00	21.00
No. 1 cast, Philadelphia	20.50	20.50	19.00	20.50
No. 1 cast, Ch'go (net ton)	**20.50**	20.00	18.50	20.00
No. 1 RR. wrot. Phila.	21.00	21.00	20.00	20.00
No. 1 RR. wrot. Ch'go (net)	**17.75**	17.25	16.50	15.00
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	$4.15	$4.15	$3.50	$3.75
Foundry coke, prompt	5.00	5.00	4.50	4.75
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	**15.25**	15.00	14.25	13.12½
Electrolytic copper, refinery	**14.87½**	14.62½	13.87½	12.62½
Zinc, St. Louis	**7.85**	7.80	7.07½	6.42½
Zinc, New York	**8.20**	8.15	7.42½	6.77½
Lead, St. Louis	**10.00**	9.80	8.70	7.95
Lead, New York	**10.25**	10.15	9.00	8.35
Tin (Straits), New York	**59.87½**	59.00	55.12½	48.00
Antimony (Asiatic), N. Y.	**18.00**	17.50	14.40	10.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

THE IRON AGE Composite Prices

Jan. 6, 1925, Finished Steel, 2.560c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

Dec. 29, 1924,	2.560c.
Dec. 9, 1924,	2.531c.
Jan. 8, 1924,	2.775c.
10-year pre-war average,	1.689c.

Jan. 6, 1925, Pig Iron, $22.25 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

Dec. 29, 1924,	$22.17
Dec. 9, 1924,	21.34
Jan. 8, 1924,	21.96
10-year pre-war average,	15.72

1924 High	1924 Low		1923 High	1923 Low
2.789c., Jan. 15	2.460c., Oct. 14	Finished Steel	2.824c., April 24	2.446c., Jan. 2
$22.88, Feb. 26	$19.21, Nov. 3	Pig Iron	$30.86, March 20	$20.77, Nov. 20

& Steel Co., the Pittsburgh Crucible Steel Co. and the Bethlehem Steel Co. at Johnstown have each put on a blast furnace in the past week or ten days, and this and the nearby districts now have 101 furnaces out of a total of 139 in production. That is nine more furnaces than were making iron at the beginning of 1924. Finishing mill capacity, taking in all classes, is at least 80 per cent engaged, with a particularly high rate of operation noted in the bar and sheet mills. The leading local independent last month established a new high record in the matter of ingot capacity and with the large independents both here and in Youngstown operating at practically full capacity, it now looks as though this month had come very close to equaling the high rate of production reached last March. For this week active steel works capacity represents at least 85 and probably more. Marked firmness still is seen in prices, not only of finished steel products, but of semi-finished steel, and the primary materials.

Now that the higher wage scale adopted by the larger independent Connellsville district operators, on Dec. 16, has become general, higher prices are sought for coke, and as second quarter coke tonnages have sold as high as $5.25 per net ton at ovens, as compared with $4.25 to $4.50 for present quarter, price ideas of pig iron producers have stiffened materially. An advance of 50c. a ton appears likely on the next business of any consequence in pig iron.

Meanwhile, in spite of a light turnover, scrap prices retain all of their recent strength. Another dollar a ton has been added to prices of open-hearth steel in semi-finished form, but at the moment there seems to be an ample supply of Bessemer steel, and it can be had at the recent prices. The report has been frequent lately of an early advance in wire nails, and some support is lent the suggestion by the fact that the manufacturers generally are canceling tonnages on which there have not been specifications by the date of expiration of contracts. There is a firmer market in strips, both hot and cold-rolled. In a general way, higher prices are mentioned only in connection with those finished lines on which prices are regarded as too low. In that category plates, shapes and bars are most commonly referred to. On the whole, there is considerable conservatism about advancing prices, as there is no desire for a runaway market, but rather the hope that an orderly advance will prolong the period of good business. It is commented upon that never before have prices remained so nearly stationary when mills were as heavily committed as they are at present.

Pig Iron.—With coke prices growing stronger and with the prospects of an advance in ore prices, producers of pig iron naturally are giving close attention to the costs and as recent prices do not appear remunerative in the calculation, there is a very general tendency to seek higher prices. Crystallization of the advance, however, is halted by the fact that practically all melters are well covered against their requirements, for the present quarter and the new year has not progressed sufficiently to give them an idea of their second quarter needs. The dullness prevents a test of the market. There does not appear to be any foundry iron available for delivery over the present quarter for less than $22.50 for the base grade, although the sales of the past week, running in small lots, have carried prices from $22 to $23. For second quarter delivery, $23 appears to be the minimum quotation on this grade and some are not willing to go even that low until the coke and ore prices for that period are more fairly defined. The common minimum asking price on basic iron now is $22, Valley furnace, and on Bessemer $23, Valley furnace, is wanted. No important sales of either grade have been reported at these prices. The steel companies do not appear as aggressive sellers of pig iron, although one company has a fair size stock that is available for delivery over the next 90 days at $22 furnace. Because of a freight advantage into Pittsburgh, this would be equivalent to about $21.50 worked back to a Valley furnace basis. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnace in December $21.885, as compared with $20.32 in November, and of basic $20.281, against $19.68 for November.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$21.50 to $22.00
Bessemer	22.50 to 23.00
Gray forge	21.50 to 22.50
No. 2 foundry	22.00 to 23.00
No. 3 foundry	21.50 to 22.50
Malleable	22.00 to 23.00
Low phosphorus, copper free	29.00

Ferroalloys.—Prices are firm all along the line, although new business is very moderate. Continued strength of sterling gives rise to expectations of a further advance in British ferromanganese, as does also the upward tendency of ore prices. Indian ore has moved up from a low of about 38c. to 45c. per unit, and it is now figured that British producers have no margin of profit even with the ferromanganese at $110 in the domestic seaboard market. Higher ore prices are a factor in ferrochromium and ferrotungsten prices, which show a stronger tendency. Reports of an advance to $85 delivered for 50 per cent ferrosilicon cannot be confirmed here; leading consumers in this district are well covered against their requirements for this year at $82.50. Spiegeleisen is firm at $33 furnace for 20 per cent material, for sizable lots, and for small tonnages quotations range $1 to $2 per ton higher. Prices are given on page 171.

Semi-Finished Steel.—The situation in billets and sheet bars continues to tighten as to available supplies, particularly of open-hearth steel. Bessemer steel still is relatively plenty, because there is a tendency to replace it with open-hearth steel in a number of directions where the use of Bessemer had been regarded as necessary. Comparatively little Bessemer steel, for example, now is used in making tin plate; rails are almost entirely of open-hearth steel and in pipe Bessemer steel now finds its principal use in buttweld sizes, which form the smaller part of the pipe production in ordinary times. Bessemer sheet bars have lately been offered at $38, Pittsburgh or Youngstown, while open-hearth bars have sold at $39 and $40 is as low as any producers will go to get additional business. In billets and slabs, the common quotation on open-hearth steel is $38, while on Bessemer, $37 still can be done. Between their own requirements, which are large on account of liberal bookings of finished material, and those of their regular customers, makers do not believe they will have any semi-finished steel to spare for delivery in the next two months. With rolling billets moving up in price, there is a tendency to seek more money for forging quality billets and blooms to preserve the recent price differential. No change is observed in wire rods or skelp. Prices are given on page 171.

Wire Products.—Specifications for this month's delivery are heavy with all makers in this district and with some they have considerably exceeded expectations, assuring a relatively full engagement of productive capacity. Some mills have begun to cancel tonnages unspecified at the end of the contract period and from that development it is evident that higher prices are expected. The ordinary procedure would be to extend rather than cancel unspecified business, but the mills now are well supplied with "live" business and are counting on better prices on future obligations. Mills in this and nearby districts are running at about 80 per cent of capacity and are shipping at an even heavier rate, which means inroads on mill stocks. Prices are given on page 171.

Tubular Goods.—Makers in this district are well satisfied with the way business in merchant pipe, more especially in the buttweld sizes, is coming in and are at least hopeful about the outlook for oil country goods, which run to the lapweld sizes. Recent advance in Pennsylvania crude oil has extended to the Ohio field, and the oil market in the Southwest also appears stronger. It is believed that well pipe soon will be in better demand as a result of the improvement in the oil market. A good many pipe lines have been projected, but actual inquiries and sales are still rather few. Improvement in boiler tube demand has been sufficient to bring operations to about 70 per cent of the average, but as yet the rising demand has produced no strength in prices. Seamless tubes are selling cheaply enough to cut heavily into the sale of welded tubes. Discounts are given on page 170.

Rails and Track Supplies.—Local standard rail unit of the Steel Corporation is well supplied with business for shipment over the first six months of this year and is running at a high rate. Makers of light rails would like to get higher prices, but there are still more sellers than buyers and the effort to put up prices is not succeeding. Demand for track fastenings is steady rather than active, with prices steady at recent levels. Prices are given on page 170.

Cold-Finished Steel Bars and Shafting.—Specifications for January are good and makers in this district are running heavier than since the fore part of 1924. With both jobbers and consumers rather lightly stocked, there is much confidence that specifications will run as close to the tonnages spoken for as the makers desire. Full specifications, it is said, would mean production well in excess of physical capacity. The automotive parts makers are not anticipating their requirements, since the automobile builders are buying materials more in keeping with actual car orders than was the case a year ago. Recent prices are holding on both screw stock and shafting; they are given on page 170.

Hot-Rolled Flats.—Practically all makers have higher price ideas on new business, because generally they are well obligated and those who do not make their own billets and slabs are confronted with higher priced raw material. On the wider sizes prices below 2.25c., base, mill, Pittsburgh district, have pretty well disappeared. This was the point of greatest weakness owing to competition from the product of jobbing and small plate mills. The market has been and still is firm on the hoop sizes. Prices are given on page 170.

Cold-Rolled Strips.—Sales of cold-rolled strips at 4.15c., base, mill, Pittsburgh district, have lately been sufficiently frequent to encourage the belief that those mills that have been selling 4c., base, have become fairly well filled up and are less anxious for more business. The lower price has not disappeared, however, and makers, who in most cases are firm at 4.15c., are meeting the lower figure when an old customer is the stake. Prices are given on page 170.

Iron and Steel Bars.—The situation in steel bars is without any material change. Mills are heavily obligated for the first quarter of this year and are getting such liberal specifications as to be rather disinterested in additional business. They are very firm at 2c. base mill, Pittsburgh district. There is also a firm market in iron bars with a good general business. Prices are given on page 170.

Structural Material.—Prices of this line are very firm because the mills are so heavily sold up and are getting such good specifications against contracts. Local fabricating shops are reasonably busy, but could take on more business. Plain material prices are given on page 170.

Plates.—There appears to be some open capacity in plates, but it is with manufacturers, who on account of high costs, could not take business at the lower levels which prevailed in the latter part of last year. Mills which filled up on the lower priced tonnage now are not anxious for additional obligations except at full quotations. Prices are given on page 170.

Sheets.—Strictly new business is of rather moderate proportions, but that is only natural in view of the very heavy purchases of the last two months of last year and is not disturbing to manufacturers whose specifications are extremely heavy. The American Sheet & Tin Plate Co. for December had specifications amounting to 150 per cent of capacity and last week had more than 85 per cent of its sheet mills in operation. In view of the fact that independent capacity is even more fully engaged, there is no question about the way specifications are being received. If there is a slow spot, it is in automobile sheets, as the builders of cars this year are producing in close harmony with orders instead of building against future demands. It is believed, however, recent price reductions in automobiles, particularly in the closed cars, which take more steel than do the open cars, will result in large sales and larger demands upon the steel industry. Prices now are very well stabilized at the Steel Corporation levels. They are given on page 170.

Tin Plate.—There is nothing new in the situation except that the consumers are taking rather liberal shipments for this time of the year as a safeguard against possible shortages when the hot weather takes its toll of tin mill workmen. All makers are sold up against probable production in the first half of the year, and the story also is written for that period, so far as prices are concerned, unless there is a greater demand than has been counted upon, and producers cannot maintain working organizations.

Bolts, Nuts and Rivets.—Makers have had liberal bolt and nut specifications on fourth quarter contracts with the expiration of the contract period, and this is providing a reasonably good rate of plant operations. Contracts for the present quarter have been large, but with consumers and distributors well supplied from fourth quarter purchases, specifications on first quarter tonnages are rather light. Local makers of cap and set screws are asking 80 and 10 per cent off list on milled screws, as against the quotation of outside makers of 80, 10 and 10 per cent off list. Prices and discounts are given on page 171.

Coke and Coal.—At least two contracts for second quarter tonnages of furnace coke have been made in the past week at $5.25 per net ton at ovens. One of them was for about 15,000 tons a month and the other for a somewhat smaller quantity. The price seems to be as low as many of the Connellsville producers are willing to go for that period, and some are asking $5.50. Tonnages for the present quarter, including $1 a ton to cover the higher costs involved in the recent wage advance, carry prices of $4.25 to $4.50; so that in a general way the pig iron producers are being asked to pay a further advance of about $1 a ton for second quarter supplies. Not enough second quarter business has been done to really provide a test of producers' prices. The spot market for furnace coke is quotable all the way from $4.15 to $5. The latter price is asked by producers who are well sold up on contracts for the present quarter and have little spot coke to sell. The prevailing market is best measured by a range of $4.15 to $4.50, the low price being that of operators who started up ovens without having regular consuming connections. Spot foundry coke still ranges all the way from $5 to $6. The coal market is good in coking grade and much firmness is observed in slack coal due to the fact that so much of the business is mine run and with little business in prepared sizes, the production of slack grade suffers. Prices are given on page 171.

Old Material.—It has been a quiet week in scrap, but prices remain very firm, because there is no pressure on the part of dealers to sell; indeed, they are disposed to pick up any tonnages of desirable material that are available to apply on existing orders to escape drawing on their yard holdings. An embargo has been set up against one Pittsburgh district point, to which there were a good many shipments without orders and with no record of sale. These shipments have caused a congestion of loaded cars at that point. Dealers with orders there should be able to pick up some material pretty cheaply, since those who shipped without orders probably will find it less costly to sell than to seek another outlet. Recent offerings of compressed sheets by a local tin plate manufacturer sold close to $20 per gross ton at mill and the freight to the nearest consuming point is $1.39, which would mean that the buyer had to get well above $21 to get out even, to say nothing of a profit. There is much interest in the prices that will be paid on the Pennsylvania Railroad scrap list, bids against which will be opened Jan. 7. Machine shop turnings and cast iron borings have sold as high as $18.50 locally since a week ago. Short shoveling turnings still are salable only as machine shop turnings and at not more than the price of that grade. Heavy breakable cast scrap has sold as high as $19.50 in the week.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$22.00 to	$22.50
No. 1 cast, cupola size	19.50 to	20.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	22.00 to	23.00
Compressed sheet steel	20.00 to	20.50
Bundled sheets, sides and ends	19.00 to	19.50
Railroad knuckles and couplers	23.00 to	23.50
Railroad coil and leaf springs	23.00 to	23.50
Low phosphorus blooms and billet ends	26.50 to	27.00
Low phosphorus plate and other material	25.00 to	26.00
Railroad malleable	21.00 to	21.50
Steel car axles	23.00 to	23.50
Cast iron wheels	21.00 to	21.50
Rolled steel wheels	23.00 to	23.50
Machine shop turnings	18.00 to	18.50
Short shoveling turnings	18.00 to	18.50
Sheet bar crops	24.00 to	25.00
Heavy steel axle turnings	19.00 to	19.50
Short mixed borings and turnings	16.00 to	16.50
Heavy breakable cast	19.00 to	19.50
Stove plate	17.00 to	17.50
Cast iron borings	18.00 to	18.50
No. 1 railroad wrought	18.00 to	18.50
No. 2 railroad wrought	22.00 to	22.50

Chicago

Record Bookings for Year at the Close—Pig Iron Again Marked Up

CHICAGO, Jan. 6.—In the heavier steel products, bookings reached their peak for 1924 in December, sales for that month being 30 to 35 per cent heavier than for November. The continuation of buying through the usually quiet holiday season is testimony to the momentum which the market has gathered since the Presidential election. In plates, shapes and bars, local mills are now committed through first quarter except for small tonnages which will fit into existing rolling schedules. Already small lots have been lost to mills east of here on the score of deliveries, but the aggregate tonnage has been inconsequential.

Conditions that support activity in the steel industry are regarded as unusually favorable and the trade sees only two possible dangers ahead, namely inflation of prices and undue expansion of business. The lessons of 1920 and 1921 have not been forgotten and steel producers are expected to pursue a cautious policy with respect to prices. Local quotations on the heavier products are unchanged, notwithstanding the heavy backlogs which have been built up, and there has been no intimation of an immediate change. Present prices on plates, shapes and bars are $8 a ton below what they were a year ago; hence there appears to be no imminent danger of what might be termed inflated prices. In fact, some advance above the present market level is regarded as inevitable, but it will probably not eventuate until prices at Pittsburgh go up. While it cannot be said that a second quarter buying movement is yet under way, it is probable that some of the tonnage recently placed will not actually be shipped during this quarter owing to the crowding of mill capacity.

Railroad buying remains a leading feature of the market. The Baltimore & Ohio has placed orders for 5000 cars and the Burlington has closed for 2000, requiring 70,000 tons of plates, shapes and bars and 11,000 tons of axles, most of which is expected to be rolled here. New rail contracts include 13,000 tons for the Grand Trunk and 2000 tons for the Kansas City Southern.

Products like wire and nails and steel pipe, which are sold largely to jobbers, are quiet pending the completion of inventory taking. Sheets are stronger and are believed to be ready for another advance. Pig iron has advanced another 50c. a ton on a strong but quieter market.

Steel output has again advanced with the leading independent operating at close to 95 per cent and the foremost interest on a 90 per cent basis. The blowing in of the third Inland stack has increased the number of active steel works blast furnaces to 29 out of a total of 34 in this district.

Pig Iron.—Local iron has again advanced 50c. a ton and now ranges from $24 to $24.50, base furnace. December shipments were 35 per cent larger than those for November and the continued pressure for iron has forced the blowing in of additional capacity. The second Federal furnace has just gone in and a third Iroquois stack will be lighted before the close of the week. Including the Zenith stack and one Mayville furnace, this will bring the total number of active merchant units up to seven. At the moment, marked activity is confined to spot purchases of small lots. When melters have completed inventory taking, a renewal of buying is looked for and this will probably embrace not only heavier spot orders but also contracts for second quarter. Detroit and Toledo furnaces have advanced silicon differentials from 50c. to $1, thus following the lead of producers here and at other producing centers. Southern furnaces are still adhering to the 50c. differential. A Southern producer shipping by barge and rail has offered a small remaining tonnage for first quarter shipment at $24.18, delivered Chicago, but for second quarter is asking $1 more. Charcoal is unchanged with trade light. A Milwaukee user has closed for 250 tons of 10 per cent silvery. Low phosphorus is stronger, although quiet in this district. No further sales of 14 to 16 per cent ferrosilicon have been reported. Pig iron producers not only face increased fuel costs but are likely to pay more for their ore. The prospective advance in ore is said to be 80c. a ton, which will wipe out the 80c. reduction in 1924.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$24.00 to $24.50
Northern No. 1 foundry, sil. 2.25 to 2.75	25.00 to 25.50
Malleable not over 2.25 sil.	24.00 to 24.50
Basic	24.00 to 24.50
High phosphorus	24.00 to 24.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	25.18
Southern No. 2, sil. 1.75 to 2.25	26.01 to 27.01
Low phos., sil. 1 to 2 per cent, copper free	33.00 to 33.50
Silvery, sil. 8 per cent	35.29
Electric ferrosilicon, 14 to 16 per cent	44.00 to 45.75

Ferroalloys.—Fifty per cent ferrosilicon has advanced to $85, delivered for both spot deliveries and contracts. Ferromanganese and spiegeleisen are quiet.

We quote 80 per cent ferromanganese, $117.56, delivered; 50 per cent ferrosilicon for 1925 delivery, $85.00, delivered; spiegeleisen, 18 to 22 per cent, $41.58, delivered.

Plates.—Fresh car orders placed by the Baltimore & Ohio and the Chicago, Burlington & Quincy will bring additional tonnage to local mills. Although the expected renewal of tank buying for the new Wortham, Tex., oil field has not yet materialized, local mills have booked 2000 tons of plates from tank fabricators during the week. Local plate capacity is so heavily committed that deliveries are steadily becoming more extended.

The mill quotation is 2.20c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Sheets.—Local mills are fairly well booked through the first quarter and outside producers are also said to have heavy commitments. Talk of advances persists, but no definite action has been taken by any mill. It is expected that blue annealed and black will go up $2 a ton and galvanized $3.

Chicago delivered prices from mill are 3.75c. for No. 28 black, 2.85c. for No. 10 blue annealed, 4.90c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.80c. base for blue annealed, 4.50c. base for black, and 5.50c. base for galvanized.

Bars.—Local mills rolling soft steel bars are so well booked that occasional small orders are being lost to outside producers because of deliveries. This may forecast another period in which Chicago district users will be forced to turn to mills east of here for a considerable tonnage in surplus requirements, but that point has by no means been reached. Local prices are strong, but will probably not advance until the Pittsburgh market gathers momentum. That bar iron bookings are improving is indicated by the fact that the Republic mill at East Chicago has gone on double turn. This is the first time a bar iron plant in this district has been on a double shift basis for over a year. Prices, however, remain unchanged and are not expected to advance until soft steel bars go up. Rail steel bar business continues to improve with prices unaltered.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 2c. to 2.10c., Chicago; rail steel, 2c. to 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Wire Products.—Jobbers, as well as manufacturing

users, are still busy with inventory taking and are not expected to specify in quantity until after the middle of the month. The railroads are buying nails rather liberally and have also placed liberal orders for barbed wire in the South. Mills are facing their busiest season and look forward with confidence to heavy bookings. The price situation is gradually freeing itself from irregularities and is said to be the firmest in weeks. For mill prices see page 170.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed, $3.15 per 100 lb.; common wire nails, $3.25 per 100 lb.; cement coated nails, $2.55 per 100 lb.

Rails and Track Supplies.—The Grand Trunk has placed 13,000 tons of rails with the Illinois Steel Co. The same mill has booked 2000 tons for the Kansas City Southern. This is in addition to the 6000 tons bought by that road from other mills, as reported in THE IRON AGE of Dec. 25. Track fastenings were also ordered by these lines. Local bookings in those products during the week embrace a total of 5000 tons of angle bars, 10,000 tons of tie plates, and 3000 tons of spikes and bolts.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.90c. to 2c., f.o.b. makers' mill.

Standard railroad spikes, 2.90c. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.45c. base, and track bolts, 4.45c. base.

Cast Iron Pipe.—Figures taken by Detroit on 5250 tons showed James B. Clow & Sons low on part of the tonnage and the prices of the American, United States and Lynchburg companies practically the same on the remainder. With the exception of one figure, which was lower, most of the bids figured back to about $40, base Birmingham, for 6-in. and larger. At St. Paul, where the National Cast Iron Pipe Co. was low bidder on 2600 tons, the prices named were slightly higher. Ames, Iowa, has placed 130 tons with the American Cast Iron Pipe Co. Saginaw, Mich., takes figures Jan. 13 on 1500 tons. Akron, Ohio, receives bids Jan. 16 on 430 tons of 6- to 36-in. Milwaukee is asking bids until Jan. 9 for furnishing 200 fire hydrants, and bids until Jan. 14 on 700 gate and tapping valves, 4- to 12-in.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $52.20; 6-in. and over, $48.20; Class A and gas pipe, $4 extra.

Structural Material.—Fabricating awards have been light, the only large letting being 3200 tons for the Starks Building, Louisville, which went to the McClintic-Marshall Co. Bids have been asked on an addition to the Chicago Union Station, 5000 tons, and on a bridge at Gettysburg, S. D., 1500 tons. Figures will also be taken shortly on the Stevens Hotel, Chicago, 17,000 tons. Preliminary estimates indicate that the American Agricultural Society Building, Chicago, will require 15,000 tons, but plans will not be completed for several months. Plain material prices are strong and deliveries from local mills are slowing down. In fact, one important producer is fully committed for the first quarter.

The mill quotation on plain material is 2.20c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bolts, Nuts and Rivets.—After the heavy specifications received against fourth quarter contracts, little activity is expected in bolts and nuts until the middle of the month, when the inventory taking period has been completed. Some specifications, however, have already been received against first quarter contracts, suggesting that the requirements of some buyers were not fully covered. Recent business from the automobile industry is considerably below what it was a year ago, but specifications from farm implement makers have shown consistent improvement. Small rivets are again showing weakness, as low as 70 and 10 and 5 off freight allowed having been done recently. Large rivets are unchanged at $2.75, base, per 100 lb., Chicago. For mill prices see page 171.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅞ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to ⅞ x 4 in., 50 off; larger sizes, 50 off; hot pressed nuts, squared, tapped or blank, $3.50 off; hot pressed nuts, hexagon, tapped or blank, $4 off; coach or lag screws, 60 per cent off.

Warehouse Prices.—Local jobbers have raised the extra for structural tees over structural angles from 5c. to 10c. per 100 lb. Ordinarily warehouse business does not get well started until toward the close of January, when inventory taking is out of the way, but this year tonnage is coming in in the most promising volume since January, 1923.

Reinforcing Bars.—In a dull market, sales are confined principally to small tonnages. Among the most promising prospects are a filtration plant at Springfield, Ill., 600 tons, and 400 tons for the Rock Island Lines. Word received from the Southwest indicates that 800 tons for a Kansas City warehouse of Montgomery Ward & Co., Chicago, was awarded some time ago to the Kansas City Bolt & Nut Co. Prices remain unchanged at 2.60c., Chicago warehouse.

Lettings include:

Michael Reese Hospital addition, Chicago, 300 tons, to Concrete Engineering Co.

Harding public school, Des Moines, Iowa, 200 tons, to Concrete Engineering Co.

Reservoir, Oak Park, Ill., 170 tons, to Concrete Steel Co.

Iowa State College, recreation building, Ames, Iowa, 100 tons, to Concrete Engineering Co.

Pending work includes:

Rock Island Lines, 400 tons.

Filtration and water softening plant, Springfield, Ill., 600 tons, V. V. Long & Co., Kansas City, architects.

Elementary public schools, Eighty-Second and Bishop Streets, and Seventy-Eighth Street and Prairie Avenue, Chicago, 400 tons, Lind Construction Co., Chicago, low bidder on general contract.

St. Lukes Hospital, Cedar Rapids, Iowa, 100 tons, general contract awarded to J. & W. A. Elliott, Minneapolis.

Coke.—Shipments of foundry coke last month were the largest on record for December. Local by-product foundry coke remains unchanged at $10.75, delivered Chicago switching district. Contracts for the first half are being closed on this basis.

Old Material.—A large independent mill has bought 20,000 tons of heavy melting at $20 delivered. Outside of this transaction, consumer buying has been limited. Brokers, however, have been active in buying railroad material, evidently anticipating a sharp revival in consumptive demand following the passing of the holiday season. Prices are still moving upward, although not so generally as a week ago. Railroad offerings include the Pennsylvania, 37,000 tons; the New York Central, 7000 tons; the Illinois Central, 4100 tons; the Pere Marquette, 1300 tons; and the Erie, a blind list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	$21.50 to $22.00
Cast iron car wheels	22.00 to 22.50
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	23.50 to 24.00
Railroad tires, charging box size	23.50 to 24.00
Railroad leaf springs, cut apart	23.50 to 24.00
Rails for rolling	21.50 to 22.00
Steel rails, less than 3 ft.	22.00 to 22.50
Heavy melting steel	19.75 to 20.25
Frogs, switches and guards cut apart	20.25 to 20.75
Shoveling steel	19.50 to 20.00
Drop forge flashings	15.00 to 15.50
Hydraulic compressed sheets	17.00 to 17.50
Axle turnings	17.50 to 18.00
Steel angle bars	21.00 to 21.50
Steel knuckles and couplers	23.50 to 24.00
Coil springs	24.00 to 24.50
Low phos. punchings	21.00 to 21.50
Machine shop turnings	13.00 to 13.50
Cast borings	15.50 to 16.00
Short shoveling turnings	15.50 to 16.00
Railroad malleable	21.50 to 22.00
Agricultural malleable	20.00 to 20.50
Per Net Ton	
Iron angle and splice bars	21.50 to 22.00
Iron arch bars and transoms	22.50 to 23.00
Iron car axles	28.00 to 28.50
Steel car axles	22.00 to 22.50
No. 1 busheling	15.50 to 16.00
No. 2 busheling	12.00 to 12.50
Pipes and flues	14.00 to 14.50
No. 1 railroad wrought	17.75 to 18.25
No. 2 railroad wrought	17.50 to 18.00
No. 1 machinery cast	20.50 to 21.00
No. 1 railroad cast	19.00 to 19.50
No. 1 agricultural cast	19.00 to 19.50
Locomotive tires, smooth	19.25 to 19.75
Stove plate	16.00 to 16.50
Grate bars	16.50 to 17.00
Brake shoes	16.00 to 16.50

New York

Large Mills Have 80 Per Cent Bookings for First Quarter

NEW YORK, Jan. 6.—Post-holiday quiet prevails in the pig iron market, but sales in this territory last week amounted to about 10,000 tons. One company sold 4000 tons, of which only a small part was Buffalo iron. Inquiry is light, but some producers are looking forward with confidence to an active demand for iron to supplement purchases for the first quarter. The outlook for second quarter business is also favorable. Prevailing prices at Buffalo are still on the basis of $23 for No. 2 plain, while eastern Pennsylvania is $23.50, although an effort is being made to advance to $24.

We quote delivered in the New York district as follows, having added to furnace price $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	27.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	26.52
Buffalo, sil. 1.75 to 2.25	27.91
No. 2 Virginia, sil. 1.75 to 2.25	$30.44 to 31.44

Ferroalloys.—Business in ferromanganese is exceedingly light. Inquiries and sales are limited to small and carload lots. Some small lots for early delivery are reported sold at $110, seaboard basis, most of it domestic, and taken by consumers whose supplies are somewhat short. The spiegeleisen market is strong but not so active as recently.

Cast Iron Pipe.—Although the first few weeks of the year are generally marked by quietness on the part of buyers, private consumers are showing a fair degree of interest in purchases for spring delivery and several municipalities are expected to come into the market before long. The city of Philadelphia is expected now to confine its activity in increasing the water supply to improvement of the present system rather than construction of a large project. The city of New York will probably appear in the market in the next few weeks for a fair tonnage of water pipe. Jobbers of soil pipe are fairly well covered at the lower discounts recently prevailing and the market has settled into the usual few weeks of mid-winter quiet.

We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $54.60 to $55.60; 4-in. and 5-in., $59.60 to $60.60; 3-in., $69.60 to $70.60, with $5 additional for Class A and gas pipe. Demand for soil pipe continues active and discounts have been advanced 2½ points. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 40 to 41¼ per cent off list; heavy, 50 to 51¼ per cent off list.

Warehouse Business.—This is a busy time at most warehouses, for the storm of last Friday interrupted deliveries in and about New York. No turn in the market has occurred. Prices rule firm on all lines, but demand is not great, though it is regarded as good for the season. The rise in price on galvanized sheets is being withheld temporarily. Among the non-ferrous products to show price advances were pig tin, which went to 62c., and No. 1 solder, now quoted at 41c. While most lines are moving at the same lagging pace, shafting and screw stock have taken on notable activity. Prices are given on page 186.

Finished Iron and Steel.—The situation has the earmarks of a transition from a buyer's to a seller's market. Indications are that the larger producers have specifications and known demands from regular customers sufficient to maintain 80 per cent operation through the first quarter. Buyers feel no concern over getting what they need when needed and with current prices $6, $8 and $10 higher per ton than the basis on which current shipments are being made, they see apparently no reason for obligating themselves now and adding to inventories. While not actively canvassing for business, sellers are not slow to enter new bookings, and there is a certain amount of discussion as to the price basis of purchases for second quarter. Claiming that the market is now definitely in their control, the producers repeatedly express the intention of keeping prices within bounds. An advance of $1 a ton is mentioned for the next quarter unless (as is regarded as unlikely) undue buying pressure should arise because of fear developed simultaneously among buyers that scarcity of labor might interfere with adequate deliveries. As to present new buying, it may be described as decidedly quiet, with few expecting any marked change for a few weeks.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.44c.; plates, 2.34c. to 2.44c.; structural shapes, 2.34c. to 2.44c.

Old Material.—Activity continues among brokers fulfilling contracts with eastern Pennsylvania consumers. No. 1 heavy melting steel is being bought at $19.50 per ton delivered to consumers at Steelton and Conshohocken, $20 per ton delivered Pottsville and $20.50 per ton delivered to a consumer at Claymont, Del. Borings and turnings continue moderately active at $13 per ton delivered Bethlehem, $14 per ton delivered to Sparrows Point, Md., and $15.50 per ton delivered to a consumer at Birdsboro. Brokers are offering $17 and better for machine shop turnings delivered to eastern Pennsylvania. Stove plate continues strong at $16.50 per ton delivered Phoenixville and $14.75 per ton delivered to a local consumer in New Jersey taking a $2.02 per ton freight rate. While the market on all grades exhibits considerable firmness, there is no evidence as yet of another upward movement.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$14.00 to $14.50
Heavy melting steel, railroad or equivalent	15.50 to 16.50
Rails for rolling	16.00 to 16.50
Relaying rails, nominal	24.00 to 25.00
Steel car axles	21.50 to 22.50
Iron car axles	27.00 to 28.00
No. 1 railroad wrought	15.50 to 16.00
Forge fire	13.50 to 14.00
No. 1 yard wrought, long	15.00 to 16.00
Cast borings (steel mill)	11.50 to 12.00
Cast borings (chemical)	17.00 to 18.00
Machine shop turnings	12.50 to 13.00
Mixed borings and turnings	10.50 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	14.25 to 14.75
Stove plate	12.75 to 13.25
Locomotive grate bars	14.00 to 14.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	16.00 to 17.00
No. 1 heavy breakable cast	14.25 to 14.75

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$18.50 to $19.00
No. 1 heavy cast (columns, building materials, etc.), cupola size	16.50 to 17.00
No. 2 cast (radiators, cast boilers, etc.)	15.50 to 16.00

Canadian Scrap Market

TORONTO, ONT., Jan. 6.—With the exception of a few minor changes in prices in the Montreal district, the Canadian iron and steel scrap market is without feature. Under the new prices Montreal dealers have advanced their buying price $1 per ton on both No. 1 machinery cast and malleable scrap, making the prevailing offering price $16 and $18 per net ton respectively. Dealers' buying prices are as follows:

	Toronto	Montreal
Gross Tons		
Steel turnings	$11.00	$10.00
Machine shop turnings	11.00	9.00
Wrought pipe	7.00	9.00
No. 1 wrought scrap	13.00	13.00
Heavy melting steel	12.75	12.00
Steel axles	17.00	19.00
Axles, wrought iron	19.00	20.00
Net Tons		
Standard car wheels	17.00	17.00
Malleable scrap	14.00	16.00
Stove plate	14.00	13.00
No. 1 machinery cast	18.00	18.00

A Mid-West conference on steam production economies will be held at the Hotel Winton, Cleveland, Jan. 13, under the auspices of the Cleveland Engineering Society, Cleveland Section of the American Society of Mechanical Engineers and the Cleveland chapter of the American Society of Heating and Ventilating Engineers. The topics to be discussed include preparation of pulverized fuel, operating experiences of plants burning pulverized fuel and group plan heating for apartment and residence districts.

Cincinnati

Furnaces Not Urging Buying of Pig Iron for Second Quarter

CINCINNATI, Jan. 6.—A few small sales for the second quarter shipment were completed last week, but generally the market was quiet. An eastern Ohio melter bought 1000 tons of foundry at $22.50, southern Ohio basis, while a central Ohio melter took 300 tons of malleable. A sale of 300 tons of low phosphorus was reported to a Kentucky melter. Inquiry is light, but is expected to develop activity during the next two weeks. Prices are steady. In southern Ohio, while it is still possible to do $22, Ironton, one interest has advanced to $23, and reports small sales. At Birmingham, $20 continues the minimum, with one furnace having named $21 on a specific inquiry for second quarter. There has been little selling for this delivery, however, most furnaces believing that prices will be higher when second quarter contracts are made. Silvery prices are still being shaded $1 a ton from the regular schedule, a sale of several hundred tons having been made last week on the basis of $29.50, furnace, for 8 per cent.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	$24.05
Southern fdy., sil. 2.25 to 2.75	24.55
Southern Ohio silvery, 8 per cent	$31.77 to 32.77
Southern Ohio fdy., sil. 1.75 to 2.25	24.27 to 24.77
Southern Ohio, basic	23.77
Southern Ohio, malleable	24.27 to 24.77

Sheets.—Inquiry is light at the present time, as most users are well covered for January and February needs. Shipments from mills in December were exceptionally heavy. Requests continue to come in for early shipments, indicating the low condition of stocks in hands of users. Little is now heard of 3.50c. price on black sheets, and on current business prices are steady at 2.70c. for blue annealed, 3.60c. for black and 4.75c. for galvanized, all f.o.b. Pittsburgh.

Structural Activity.—Railroad buying is the most important feature of the structural industry. The Louisville & Nashville Railroad awarded 1400 tons of bridge work last week, and has new inquiries for 1450 tons. A cement plant near Dayton, Ohio, requiring 1200 tons, has been placed.

Reinforcing Bars.—The Wabash Portland Cement Co., Ford Building, Detroit, has bought 700 tons of hard steel bars for a plant which it will erect at Osborn, Ohio. The price delivered Dayton, Ohio, is reported to have been 2c. General contract for Bethesda Hospital addition, Cincinnati, has been awarded Max Penker & Sons, who will buy 300 tons of bars. The Waverly Hospital at Louisville, Ky., requiring 450 tons, is again up for bids. Reinforcing bars on current orders range from 1.90c. to 2.10c., mill, the lower price representing quotations on attractive tonnages of hard steel bars.

Warehouse Business.—The past week has been a dull one, due in a large measure to the New Year's holiday and the fact that inventories were being taken. Generally speaking, jobbers had a fair year, and are looking forward to a much better one in 1925. Prices are steady and unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, $3.15 per 100 lb.; common wire nails, $3.15 per keg base; cement coated nails, $2.85 per keg.

Finished Materials.—Demand for finished materials has been mostly of fill-in variety. The largest order placed was for 1200 tons of shapes for early delivery, taken on the basis of 2c., Pittsburgh. Plate prices are strengthening, and on the general run of business 2.10c., Pittsburgh, is commonly quoted, though a price of 2c. can still be done on attractive inquiries. There is little demand for bars, and the price is firm at 2.10c., Pittsburgh. Bolt and nut specifications are in good volume, and prices are being maintained. There is little being done in the wire and nail market, and prices are strong at $2.60 for plain wire and $2.85 for wire nails, f.o.b. Ironton. Railroad spikes are in better demand, and prices are very firm. The New York Central Lines is reported to be about to close for 1925 requirements of tie plates, angle bars and spikes, included in which is several thousand tons for the Big Four Railroad. Light rails are in demand in carload lots, with prices ranging from 1.80c. to 1.90c.

Fluorspar.—Illinois and Kentucky producers have advanced prices to a flat minimum of $20, mines, without any distinction as to grades for gravel fluorspar. Lump fluorspar is quoted at a minimum of $22.50, mines. There is fair amount of inquiry in small lots.

Coke.—January specifications for foundry and domestic grades are heavier than for December. We note one sale of 1000 tons of furnace coke to an Eastern furnace at an undisclosed price. Prices generally are steady and unchanged from last week as follows:

Connellsville foundry, $4.50 to $5.50; furnace, $4.00 to $4.50; New River foundry, $8.50; Wise County foundry, $4.50 to $6.00; furnace, $4.00 to $5.00; By-Product foundry, $6.50 Connellsville basis.

Old Material.—Consumer buying in this district is light, though dealers are actively buying to fill existing contracts. Prices are still advancing. It is expected that buying will shortly begin, as stocks are getting low.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$17.00 to $17.50
Scrap rails for melting	16.50 to 17.00
Short rails	20.00 to 20.50
Relaying rails	31.00 to 31.50
Rails for rolling	18.50 to 19.00
Old car wheels	16.00 to 16.50
No. 1 locomotive tires	19.00 to 19.50
Railroad malleable	19.00 to 19.50
Agricultural malleable	18.00 to 18.50
Loose sheet clippings	13.50 to 14.00
Champion bundled sheets	14.50 to 15.00
Per Net Ton	
Cast iron borings	13.00 to 13.50
Machine shop turnings	12.00 to 12.50
No. 1 machinery cast	20.00 to 20.50
No. 1 railroad cast	17.50 to 18.00
Iron axles	23.50 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Pipes and flues	10.50 to 11.00
No. 1 busheling	12.50 to 13.00
Mixed busheling	10.00 to 10.50
Burnt cast	12.50 to 13.00
Stove plate	12.50 to 13.00
Brake shoes	14.00 to 14.50

Boston

Heater Manufacturer About to Buy Several Thousand Tons of Iron

BOSTON, Jan. 6.—A heater manufacturer today or tomorrow probably will purchase several thousand tons of No. 2 plain second quarter iron. Comparatively few furnaces competed for this business, most of them holding off pending ore cost developments. The buyer claims he can do better than $23, Buffalo furnace base, or around $27 delivered, and fully as well on foreign iron. Otherwise buyers evince little interest in iron. Well scattered reports, mostly from small foundries throughout New England, indicate increasing melts. At the same time, foundries report prices on castings as low or lower than when domestic iron was $4 to $5 a tone cheaper. In such instances more interest is shown in foreign than in domestic iron. Generally, the recovery in New England's melt is slower than had been hoped for.

We quote delivered prices on the basis of the latest reported sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$27.15 to $27.65
East. Penn., sil. 2.25 to 2.75	27.65 to 28.15
Buffalo, sil. 1.75 to 2.25	27.91
Buffalo, sil. 2.25 to 2.75	28.41 to 30.92
Virginia, sil. 1.75 to 2.25	29.92 to 30.92
Virginia, sil. 2.25 to 2.75	30.42 to 31.42
Alabama, sil. 1.75 to 2.25	29.60 to 30.10
Alabama, sil. 2.25 to 2.75	30.10 to 30.60

Cast Iron Pipe.—Boston has awarded 1500 tons of 48-in. pipe to the Warren Foundry & Pipe Co., the only sizable tonnage placed in this territory during the past

fortnight. Pipe prices are reported as firm as follows: Class B, 4-in. and smaller, $66.10 delivered Boston common rate points; 6-in. to 16-in., $61.10; 20-in. and larger, $60.10 a ton. Differentials of $4 to $5 are asked on Class A and gas pipe.

Shapes and Plates.—While mills openly quote plates at 2.51½c. per 100 lb. delivered Boston common rate points to 2.15c., Pittsburgh base, large users maintain 2.46½c. delivered or 2.10c., Pittsburgh base, can be done. It is generally admitted, however, the market is firmer and that 2.51½c. is being obtained more often than 2.46½c. delivered. The market on shapes is 2.36½c. to 2.46½c. per 100 lb. delivered Boston common rate points, or 2c. to 2.10c., Pittsburgh base. The largest roller yesterday advanced from 2c. to 2.10c. The two largest producers are several weeks behind on deliveries.

Coke.—The New England Coal & Coke Co. and the Providence Gas Co. made the January price on by-product foundry coke to apply to first half of 1925 contracts, $11.50 per ton delivered. That price has been quoted by both companies since July 11, 1924. The movement of by-product fuel from ovens to foundries in December proved to be the heaviest reported for any month in 1924. Since Dec. 31, last, there has been some letup in contract specifications, but coke makers are being pushed for domestic fuel deliveries. Reserve supplies of domestic sizes of coke at ovens are now down to the minimum.

Old Material.—Aside from an advance of 50c. a ton on heavy melting steel, old material prices are practically unchanged. Business the past week was quiet in this territory. The movement of material out of New England on the present buying movement has been comparatively small, due to the tendency of dealers to hold for higher prices. With the steel mills, particularly those in the Pittsburgh and the eastern Pennsylvania districts, sold well ahead, and with their stocks of scrap relatively small, New England old material dealers are optimistic regarding the business outlook.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$19.50 to $21.00
No. 2 machinery cast	17.00 to 18.00
Stove plates	15.00 to 15.50
Railroad malleable	20.00 to 20.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$16.00 to $16.50
No. 1 railroad wrought	16.00 to 16.50
No. 1 yard wrought	15.00 to 15.50
Wrought pipe (1-in. in diam., over 2 ft. long)	13.00 to 13.50
Machine shop turnings	12.00 to 12.50
Cast iron borings, chemical	16.00 to 16.50
Cast iron borings, rolling mill	11.00 to 11.50
Blast furnace borings and turnings	10.00 to 10.50
Forged scrap	12.00 to 12.50
Bundled skeleton	12.00 to 13.00
Bundled cotton ties	11.00 to 11.25
Forged flashings	12.50 to 13.00
Shafting	18.50 to 20.00
Street car axles	18.50 to 19.00
Rails for rerolling	16.50 to 17.00
Scrap rails	15.50 to 16.00

St. Louis

Heavy Shipments of Pig Iron—Missouri Pacific Inquires for Fittings

ST. LOUIS, Jan. 6.—Because of the holidays, buying of pig iron in this market has been very light for the last two weeks. Melters are expected, however, to resume buying shortly, but they are not being hurried by the makers, who seem well sold up. A most hopeful sign is the anticipation of shipments against contracts, the St. Louis Coke & Iron Co. shipments for December having been the largest but one of any month in its history. The Federal Reserve Bank of St. Louis reports that the melt in the district during November was 3¾ per cent larger than the previous month and 5 per cent in excess of November, 1923. Reports from Texas stated that a considerable tonnage of pig iron from India is being sold there at a delivered price about equal to Southern iron delivered. The iron is being shipped by steamer through the Port of Galveston and rail. Because of freight rates this iron cannot be sold farther north than Dallas, Tex., or Shreveport, La.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$26.16
Northern malleable, sil. 1.75 to 2.25	26.16
Basic	26.16
Southern fdy., sil. 1.75 to 2.25 (rail)	25.17
Southern fdy., sil. 1.75 to 2.25 (rail and water)	23.28
Granite City iron, sil. 1.75 to 2.25	24.81 to 25.31

Finished Iron and Steel.—The first railroad inquiries of the year were for track fittings, the Missouri Pacific asking for prices on its first quarter requirements of tank plates, angle and channel bars (tonnage not specified), while the Mobile & Ohio is in the market for 450 tons of tank plates and 350 tons of angle channel bars for shipment during the next four months, all for maintenance. The 1925 budget for the St. Louis & San Francisco Railroad, amounting to $5,248,000, includes $2,300,000 for rehabilitation of equipment and $449,000 for passenger stations. The James Black Masonry & Construction Co. has the contract for the 12-story office building at Eleventh and Locust Streets, which will be built of reinforced concrete, tonnage not yet fixed. Several structural steel jobs are pending. Business in other lines is quiet.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, cold rolled, one pass, 4.65c.; cold rolled rounds, shafting and screw stock, 3.95c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅞ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—Buying of industrial grades has been light during the last two weeks because of the holidays. Connellsville grades are expected to be higher as a result of higher wage scales established by coke operators. What coke business there is is going to the by-product makers in Granite City, Indianapolis and St. Louis. Colder weather has helped the demand for domestic coke.

Old Material.—Prices for old material continue to advance. Consumers have bought such material as they require for immediate use. They would buy more, but dealers are holding out for higher prices than are offered to them. Railroad lists during the week include: Atchison, Topeka & Santa Fe, 2200 tons; Missouri Pacific, 4000 tons and Pennsylvania, 38,000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$18.00 to $18.50
Rails for rolling	20.50 to 21.00
Steel rails, less than 3 ft.	20.50 to 21.00
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	21.00 to 21.50
Heavy melting steel	17.50 to 18.00
Heavy shoveling steel	17.50 to 18.00
Frogs, switches and guards cut apart	20.00 to 20.50
Railroad springs	22.00 to 22.50
Heavy axles and tire turning	13.50 to 14.00
No. 1 locomotive tires	19.50 to 20.00
Per Net Ton	
Steel angle bars	17.50 to 18.00
Steel car axles	21.00 to 21.50
Iron car axles	25.00 to 25.50
Wrought iron bars and transoms	21.00 to 21.50
No. 1 railroad wrought	16.50 to 17.00
No. 2 railroad wrought	16.00 to 16.50
Cast iron borings	11.25 to 11.75
No. 1 busheling	16.50 to 17.00
No. 1 railroad cast	18.00 to 18.50
No. 1 machinery cast	19.00 to 19.50
Railroad malleable	16.00 to 16.50
Machine shop turnings	9.50 to 10.00
Champion bundled sheets	10.00 to 10.50

After a month of negotiations looking to a consolidation of the Hurley Machine Co. and the Edison Electric Appliance Co., Chicago, and the Electric Vacuum Cleaner Co., Cleveland, into what would have been the largest electrical household equipment organization in the country, it has been announced that the merger has fallen through.

Birmingham

Sales of Pig Iron Being Made in Small Lots with Prices Firm

BIRMINGHAM, ALA., Jan. 6.—The Southern pig iron market is characterized by steady delivery on old contracts, sales in small lots and quotations showing an upward trend. Small lot sales have been made again at $20.50 per ton, No. 2 foundry, and indications point to $21 being the price within another two weeks. Production is being given attention and future needs show a larger tonnage requirement than is at present being manufactured. Following the blowing in of two blast furnaces on Jan. 1 by the Sloss-Sheffield Steel & Iron Co., that company will immediately prepare another furnace for the torch and consider a second one a little later. The Tennessee Coal, Iron & Railroad Co. is getting in shape the old Oxmoor blast furnace, which has not been in operation since the World War.

*We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$20.00 to $20.50
No. 1 foundry, 2.25 to 2.75 sil.	20.50 to 21.00
Basic	20.00 to 20.50
Charcoal, warm blast	30.00

Steel.—The Gulf States Steel Co. is getting a fifth open-hearth furnace ready at its Gadsden mills and will increase its output of steel. The Tennessee Coal, Iron & Railroad Co.'s steel plant has been operating to almost capacity for months. Soft steel bars quoted 2.25c. to 2.35c.

Cast Iron Pipe.—Additional lettings are reported by the cast iron pipe producers. Winter buying holds out bright promise and the several plants in the Birmingham district look for good demand through the year. Quotations are on a $40 base for 6-in. and over pipe. All pipe is being shipped as quickly as tested.

Coke.—Better feeling is noted in the coke market in this district and an advance in quotations is believed imminent. Quotations are firm, ranging from $4.50 to $5 for foundry coke. Work will be started on the 57-ovens by-product Koppers plant of the Republic Iron & Steel Co. next week.

Scrap.—The scrap iron and steel market in the South is very strong. Sales made during the past month call for a large tonnage and inquiries are in hand for further tonnages. Quotations are unchanged for the week but are very firm.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	15.00 to 15.50
Railroad wrought	14.00 to 15.00
Steel axles	18.00 to 19.00
Iron axles	19.00 to 20.00
Steel rails	15.00 to 15.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 17.00
Stove plate	15.00 to 16.00
Machine shop turnings	8.00 to 9.00
Cast iron borings	8.00 to 9.00
Rails for rolling	15.50 to 16.50

San Francisco

Deliveries Slower—Prices Firmer—Structural Activity Continues

SAN FRANCISCO, Jan. 3 (*By Air Mail*).—Inventories, conferences and the celebration of New Year's Day all contributed to a slowing down of business during the past week. The outlook for a speedy resumption of activity, however, is very good. Several large structural and plate jobs are pending, and a number of jobs calling for fairly large tonnages of reinforcing bars are also expected to be placed in the near future. Awards for structural steel made during the past week called for nearly 5000 tons.

Construction projects that are pending or being prepared for the first part of 1925 are numerous and the amount of steel that will be used is expected to be substantial. The past year broke all former building records in this city, and the volume all along the Pacific Coast was large. In San Francisco the total amount named in building permits exceeded $57,733,942, which was $1,155,098 more than the total amount expended for new buildings in 1907, the year after the great fire. Building permits issued here since the fire have amounted to $533,618,707.

Deliveries from Eastern, as well as local mills, are somewhat slower than formerly, and prices generally are firmer. Higher quotations for shapes and plates are expected in the near future.

Pig Iron.—Prices are somewhat firmer, although no change has been made in current quotations. Buyers are fairly well covered in their requirements for the first quarter, but several prominent sellers expect a good volume of orders to be placed during this month. There is, at present, comparatively little foreign iron being offered. Current quotations are as follows:

	Per Ton
*Utah basic	$27.25 to $28.25
*Utah foundry, sil. 1.75 to 2.25	27.50 to 28.50
**Scotch foundry	30.00 to 32.00
**English foundry	28.50 to 30.00
**Belgian foundry	26.00 to 28.00
**Indian foundry	2600 to 28.00
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	31.00

*Delivered in San Francisco.
**Duty paid, f.o.b. cars, San Francisco.

Bars.—Several jobs calling for a fairly large tonnage of reinforcing bars are pending. The awards of the past week involved only small amounts of less than 100 tons. Prices are firm, reinforcing bars are quoted at 3.35c. base, carload, and 3.80c. base, l.c.l. Soft steel bars are 2.55c. to 2.60c. carload. Warehouse prices are $3 base, l.c.l. for soft steel bars and $3.75 base, l.c.l. for soft steel bands.

Cast Iron Pipe.—A number of jobs that had been pending for some time were awarded the past week, although, generally speaking, the market for pipe is rather quiet at present. The awards are:

City of Whittier, 1400 ft., 8 in. Class B, cast iron pipe to U. S. Cast Iron Pipe & Foundry Co., San Francisco.
City of Paso Robles, 109 tons, 4-in. and 60-in. Class B cast iron pipe to McWane Cast Iron Pipe Co., Los Angeles.
City of Los Angeles, 2519 tons cast iron pipe to American Cast Iron Pipe Co., Los Angeles.
City of Long Beach, 924 tons, 20-in. Class B cast iron pipe to U. S. Cast Iron Pipe Co., Los Angeles.
City of Alhambra, 577 tons, Class B cast iron pipe to National Cast Iron Pipe Co., Los Angeles.
City of Spokane, Wash., 750 tons, 6 in. to 12 in., Class B cast iron pipe to National Cast Iron Pipe Co., San Francisco.

Coke.—Interest is more or less confined. Prices remain the same as were quoted a week ago. Buyers seem disposed to wait for developments. Birmingham, Ala., by-products coke is $18.50 to $20.50 delivered. West Virginia beehive is $28 delivered, Wise County, Va., beehive is $22 and English beehive is $16. English by-product is about $14, although there have been no recent sales of any size.

Sheets.—Little interest was given to sheets during the past week because of the holidays and the taking of inventories. Prices are substantially the same, although they are materially firmer than they were two weeks ago. Blue annealed sheets are 3.425c., c.i.f., black are 4.33c., c.i.f., and galvanized are 5.485c., c.i.f.

Structural Shapes.—Contracts involving 4370 tons of shapes were awarded during the past week, and several jobs calling for large tonnages are pending. Prices are stiffening, and deliveries are slower. Shapes are very firm at 2.45c., c.i.f., and 2.50c. is being asked in some places.

Plates.—No large awards were announced during the past week. Prices are somewhat firmer, and deliveries are slower. Current quotations are 2.45c. to 2.50c., c.i.f. There are several contracts pending.

Old Material.—Conditions and prices in the local scrap market remain unchanged. The best quotation for heavy melting steel seems to be $11, and the same material in Los Angeles is $1 lower. Buyers are apparently waiting for new developments before committing themselves. Local mills for the most part are fairly well supplied.

Prices for scrap delivered to consumers' yards are as follows:

	Per Gross Ton
No. 1 heavy melting steel	$11.00 to $12.00
Scrap rails, miscellaneous	11.00 to 12.00
Rolled steel wheels	11.00 to 12.00
Couplers and knuckles	11.00 to 12.00
Mixed borings and turnings	6.00 to 6.50
Country mixed scrap	8.50 to 9.00

Cleveland

Specifications Are Liberal, but Buying Is Light—Prices Firm

CLEVELAND, Jan. 6.—The steel market has not yet fully recovered from the holiday lull and specifications and new business were light during the week. However, consumers have placed liberal specifications on contracts and mills are well filled with orders for the first quarter. Some buyers have specified for all the material purchased for the three months' period. The rush of specifications was so heavy at the close of the year that deliveries on steel bars have slowed down to four or five weeks from some of the mills and some consumers are crowding producers for early shipments. Some of the sheet producers in the Valley district have put additional mills in operation this month. Automobile companies are ordering freely for early requirements. The market is very firm, with no definite price changes. In the structural field considerable new work is in prospect, including bar mill buildings for the McKinney Steel Co., which will require several thousand tons of structural shapes. New inquiries are pending from oil companies for stills requiring 400 tons of plates. It is understood that the Clover Leaf Railroad has made a distribution of its rail requirements, placing 3000 tons with the Steel Corporation and 1500 tons each with the Bethlehem Steel Co. and Inland Steel Co., although the orders have not yet been sent out.

Pig Iron.—While the market is not active, inquiries aggregating several thousand tons, nearly all for the second quarter, have come out since the holiday lull. However, most producers are unwilling to quote for that delivery because of advancing costs due to the higher coke prices or to the possibility that furnaces having by-product plants will have to pay more for coal. Furnaces are getting a heavy volume of shipping orders on first quarter contracts. The American Steel & Wire Co. placed another Central furnace in blast during the week and is now operating all of its four Cleveland stacks. The Stewart Iron Co. has placed in blast its furnace at Sharon, Pa. A Canton consumer is inquiring for 10,000 tons of basic iron for the second quarter and an inquiry from Warren, Ohio, for 1000 tons of malleable iron for the same delivery is pending. The market is firm at $23 Cleveland and at other Lake furnaces for foundry and malleable iron, and the same price prevails in Michigan. Local furnaces continue to quote $23 at furnace for Cleveland delivery. In the Valley district $22.50 appears to be the minimum price. One producer is quoting that price for the first quarter and $23 for the second quarter. Low phosphorus iron has stiffened to $29, at which a Valley furnace sold several lots aggregating 3500 tons during the week. Offers of $23 for Bessemer iron have been refused by one producer, who is holding to $24. Southern foundry iron is dull. While a small lot was sold at $20 for the second quarter, furnaces generally have not opened their books for that delivery.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 rate from Birmingham:

Basic, Valley furnace	$22.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	23.50
Southern fdy., sil. 1.75 to 2.25	$26.01 to 26.51
Malleable	23.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	29.00

Semi-Finished Steel.—Some inquiry for sheet bars is still coming out, and a Canton consumer is reported to have placed a 5000-ton lot. The market is very firm. A local mill is holding to $40, Cleveland, for sheet bars at which sales have been made, and $39, Youngstown, is regarded the minimum price. Billets and slabs are quoted at $37.50 to $38, Youngstown.

Sheets.—Buying is light, but some good specifications came out during the week and mills generally have well-filled order books for the first quarter. Black sheets can still be purchased at 3.50c. for early shipment, but other grades are firm at regular quotations. Auto body sheets, which were being sold last month at 4.60c. for immediate rolling, have stiffened to the regular 4.75c. quotation.

Reinforcing Bars.—The market is quiet, but prices on rail steel bars are firmer, with 1.90c., Pittsburgh, now the minimum price, and some mills quoting 2c. The National Concrete Fireproofing Co. was the low bidder for 200 tons for a building in connection with the Baldwin Reservoir, Cleveland. An inquiry is out for 400 tons for the American Insurance Union Building, Columbus, Ohio. A sewage disposal plant in Cleveland will require 1500 tons.

Strip Steel.—Mills are now holding firmly to 2.40c., Pittsburgh, for wide hot-rolled strip steel. While hoops and bands have not advanced as much as other finished lines, the market on these is firmer, with some mills holding to a 2.60c. price for the former and 2.50c. for the latter. Cold-rolled strip steel still ranges from 4c. to 4.15c., Cleveland.

Bolts, Nuts and Rivets.—Specifications on fourth quarter bolt and nut contracts were very heavy during the past week, but few orders have been placed against first quarter contracts which were taken at higher prices. Rivet specifications are heavy. Most consumers are now under first quarter contracts. Prices are firm on bolts, nuts and rivets.

Steel Bars, Plates and Structural Material.—Two or three additional independent mills have advanced their plate price to 2.10c., Pittsburgh, at which some car-lot sales have been made, but others continue to quote 2c. Steel bars and structural material are firm at 2.10c., Pittsburgh.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.60c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 1 in. and wider and 20 gage and heavier, 3.85c.; narrower than 1 in., all gages, 4.35c.; No. 9 annealed wire, $3.15 per 100 lb.; No. 9 galvanized wire, $3.60 per 100 lb.; common wire nails, $3.25 base per 100 lb.

Coke.—The foundry coke market is dull, with prices firm and unchanged at $5.25 to $5.50 per ton, for standard Connellsville coke for prompt shipment for the first quarter.

Alloy Steel.—Releases of good tonnages of narrow steels for January rolling have come from several of the leading automobile companies and mills are comfortably filled for this month. New business includes 2800 tons placed by two automobile forge shops in the Cleveland district during the past week. Prices are holding to the regular schedule.

Old Material.—Prices have again advanced 25c. a ton on most grades and the market is very firm. Yard dealers have large stocks which they are holding for further advances. There was virtually no buying by mills during the week. Most consumers have good stocks and scrap is being shipped in faster than needed in some plants. Railroad malleable has taken a jump of $1.25 a ton. The demand for cast scrap has been insufficient to push it upward with other grades and it is only slightly above heavy melting steel, although usually there is a $2 spread between the two grades. Heavy melting steel scrap is quoted at $22 to $22.25 in the Valley district.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$19.75 to $20.00
Rails for rolling	19.75 to 20.00
Rails under 3 ft.	22.00 to 22.50
Low phosphorus melting	22.00 to 22.25
Cast iron borings	16.25 to 16.50
Machine shop turnings	16.00 to 16.25
Mixed borings and short turnings	16.25 to 16.50
Compressed sheet steel	17.00 to 17.50
Railroad wrought	16.75 to 17.25
Railroad malleable	21.00 to 21.50
Light bundled sheet stampings	14.25 to 14.75
Steel axle turnings	17.25 to 17.50
No. 1 cast	20.00 to 20.50
No. 1 busheling	16.00 to 16.25
Drop forge flashings	15.25 to 15.75
Railroad grate bars	16.25 to 16.50
Stove plate	16.25 to 16.50
Pipes and flues	14.50 to 14.75

Philadelphia

New Buying Light, but Specification Against Contracts Is Active—Pig Iron Quiet

PHILADELPHIA, Jan. 6.—Business is still affected by the holiday lull, a general quiet that it is predicted in some quarters may extend well into January as a result of the satisfactory position of consumers. Mills are well booked for the next 30 to 60 days, and holding firmly to quoted prices. Although many consumers contracted last month at the lower quotations then prevailing, estimating that they had covered requirements for a fair part of the first quarter, mills report buyers specifying heavily against contracts and in some instances running into what was expected to be February tonnage, particularly on bars and plates.

In the closing days of the year the railroads showed considerable activity, particularly the Pennsylvania, in purchases of bars, plates, billets and other material. Some protection at the prices quoted in December is reported to have been obtained, but the majority of buyers were covered only to the end of the year.

The pig iron market, in contrast to the activity of recent weeks, has been almost at a standstill, except for several small purchases of basic. Old material prices are firm but exhibit no tendency as yet to register further advances. Bids on the Pennsylvania Railroad monthly list of scrap were submitted Jan. 7.

Pig Iron.—Foundry iron has been particularly inactive, with sales confined to carloads or lots of a few hundred tons. Occasionally there is an inquiry from a consumer who underestimated first quarter requirements. One foundry interest recently asked for prices on 1000 tons for first quarter, an addition to recent purchases. Despite the lack of business, prices are firm, with a number of furnaces quoting $24 per ton base on foundry, although $23.50 per ton is still the minimum obtainable. Basic shows slightly more activity, but tonnages in recent transactions are not much larger proportionately. Actual purchases of the past week reflect a strong market, with an upward tendency. A fair range for today's market on basic is $24.25 to $24.75 per ton, delivered eastern Pennsylvania. The Pennsylvania Railroad is reported to have closed on about 3000 tons of basic high in manganese. An eastern Pennsylvania melter recently purchased about 1000 tons of basic at a price of slightly more than $24.25 per ton delivered, and a pipe mill also bought a small tonnage. A large producer of cast iron pipe has closed on a small tonage of gray forge at a price that justifies a current quotation of $24 to $24.50 per ton, delivered.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$24.26 to $25.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	25.01 to 25.88
East. Pa. No. 1X	26.01 to 26.88
Virginia No. 2 plain, 1.75 to 2.25 sil.	29.17 to 29.67
Virginia No. 2X, 2.25 to 2.75 sil.	29.67 to 30.17
Basic delivered eastern Pa.	24.25 to 24.75
Gray forge	24.00 to 24.50
Malleable	24.50 to 25.00
Standard low phos. (f.o.b. furnace)	25.50 to 26.50
Copper bearing low phos. (f.o.b. furnace)	25.50 to 26.00

Billets.—The market shows more firmness with makers adhering fairly well to a range of $37 to $37.50 per ton, Pittsburgh, for rerolling and $42.50 per ton, Pittsburgh for forging quality. The Pennsylvania Railroad recently closed on a small tonnage of forging billets.

Bars.—Mills are well booked with tonnage for the rest of this month and into February, but report heavy specifications against contracts by the buyers. Most of the business now on the books was taken at the prices prevailing a month or more ago, but makers are holding firmly to 2.10c. per lb., Pittsburgh, for first quarter delivery. Iron bars are fairly firm at 2.10c. per lb., f.o.b. mill, but competition is keen and the freight rate to consumer's plant is partially absorbed when necessary to secure business.

Shapes.—Structural projects generally involve small tonnages, but reported plans for spring activity have given the market an optimistic outlook. A large apartment building is being considered for Philadelphia, to be erected on a site adjoining the Penn Athletic Club being built on Rittenhouse Square. The building is expected to require close to 4000 tons of steel. Mills are quoting shapes at 2.10c. per lb., Pittsburgh, but 2c. per lb. is believed by buyers to be obtainable still.

Plates.—Most makers are well booked for the next 30 days and holding firmly to 2c. per lb., Pittsburgh. One maker is reported to be adhering to a minimum of 2.10c. per lb. for all specifications. Car builders continue prominent among purchasers of plates and the railroads also closed on fair tonnages before the end of the year.

Strip Steel.—Active purchasing of hot-rolled strip steel is reported with quotations firm at 2.40c. per lb., f.o.b. mill. Cold-rolled strip ranges from 4.15c. to 4.30c. per lb. base. While makers are quoting on basing points, some change in the bases used is expected.

Warehouse Business.—Purchases from stock continue small, but prices are firm on most products. Blue anealed sheets, which were not advanced in price recently when black and galvanized quotations were marked up, have been raised to 3.85c. per lb., base.

Soft steel bars and small shapes, 3.20c.; iron bars (except bands), 3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 3.10c.; tank steel plates, ⅜ in., 3.25c.; blue annealed steel sheets, No. 10 gage, 3.85c.; black sheets, No. 28 gage, 4.85c.; galvanized sheets, No. 28 gage, 6c.; square twisted and deformed steel bars, 2.85c.; structural shapes, 3.10c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; round cold-rolled steel, 4.15c.; squares and hexagons, cold-rolled steel, 4.65c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 3.95c.; narrower than 1 in., all gages, 4.45c.; steel bands, No. 12 gage to ⅞ in., inclusive, 3.95c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—Activity is generally confined to buying in fulfillment of contracts. Mills, as a rule, well-covered for the next 30 to 60 days are not inclined to contract heavily at present. While $22 per ton has been done, it was in isolated instances, where special conditions prevailed. The general market continues at $21 per ton, but the purchase since the first of the year of about 5000 tons of No. 1 heavy melting steel by an eastern Pennsylvania consumer at $19 per ton, delivered, justifies a range in the market of $19 to $21 per ton. Machine shop turnings are firm at $17 to $17.50 per ton, and with brokers paying not less than $17 to fill contracts for turnings, the inclination is toward higher prices on new business. Both shafting and steel axles are stronger and show advances of 50c. per ton. Other grades are unchanged but strong.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	$19.00 to $21.00
Scrap rails	20.00 to 21.00
Steel rails for rolling	20.00 to 21.00
No. 1 low phos., heavy 0.04 and under	24.00 to 25.00
Couplers and knuckles	22.50 to 23.50
Rolled steel wheels	22.50 to 23.50
Cast-iron car wheels	19.50 to 20.00
No. 1 railroad wrought	21.00 to 22.00
No. 1 yard wrought	18.00 to 19.00
No. 1 forge fire	17.50 to 18.00
Bundled sheets (for steel works)	17.00 to 17.50
Mixed borings and turnings (for blast furnace use)	13.50 to 15.50
Machine shop turnings (for steel works use)	17.00 to 17.50
Machine shop turnings (for rolling mill use)	17.00 to 17.50
Heavy axle turnings (or equivalent)	18.00 to 18.50
Cast borings (for steel works and rolling mills)	15.50 to 16.00
Cast borings (for chemical plants)	21.00 to 22.00
No. 1 cast	20.50 to 21.00
Heavy breakable cast (for steel plants)	18.50 to 19.00
Railroad grate bars	17.00 to 18.00
Stove plate (for steel plant use)	16.50 to 17.00
Wrought iron and soft steel pipes and tubes (new specifications)	18.00 to 18.50
Shafting	25.50 to 26.50
Steel axles	25.50 to 26.50

Imports.—In the week ended Jan. 3 there was a total of 2031 gross tons of pig iron brought in at the

port of Philadelphia, 1516 tons from the United Kingdom and 515 tons from India. In addition to pig iron, there was 3250 gross tons of chrome ore from South Africa; 7300 tons of iron ore from Algeria and 154 tons of structural steel from Belgium.

Buffalo

Pig Iron and Finished Material Markets Quiet, with Prospects Favorable

BUFFALO, Jan. 6.—The pig iron market is firm, with a total first quarter inquiry of approximately 8000 tons. Included in this are some inquiries which are not expected to come here, being from without the territory. Of these New England supplies a 4000-ton lot; Pennsylvania, a 2000-ton lot, and Ohio, a 1400-ton lot. An inquiry said to total several thousand tons for second quarter is also out. Sales have been 5000 to 6000 tons. The base price of $23 is still firm and one maker is refusing to quote on the higher silicons. All of the inquiries mentioned above are for foundry iron.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$23.00
No. 2 foundry, sil. 2.25 to 2.75	23.50
No. 1 foundry, sil. 2.75 to 3.25	24.50
Malleable, sil. up to 2.25	23.00
Basic	23.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Buffalo mills look forward to the first half of this year with a good deal of optimism. Operations are around 80 to 85 per cent, with some plants operating 100 per cent of finishing capacity. Order books are beginning to take on an improved appearance and prices are firm. Mills are looking for an increase in the price on bars. Sheet business is fair with prices also firm. Structural fabricators report a comparatively inactive period. A 600-ton transmission tower job is believed to have been placed. Placement of reinforcing bars for road work during the past week has totaled nearly 1000 tons. Wire mills continue at full strength of operation and heavy output.

Old Material.—The market is quiet, with no sales of importance since the first of the year. The price structure is firm and somewhat stronger than last week, but nothing in the nature of a runaway market is apprehended. In fact, mills, though optimistic, are not unduly excited over the present business, and it is stated that supplies of scrap will be sufficient to last them for a month under present rate of operation. Mills are still receiving material on old orders placed at $19.50 and $20. Some dealers during the week paid $20.50 either on speculation or to cover on old orders. Some demand exists for stove plate, one of the district consumers offering $16.75 for it.

We quote f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$20.00 to $20.50
Low phosphorus, 0.04 and under	22.50 to 23.50
No. 1 railroad wrought	16.50 to 17.00
Car wheels	17.50 to 18.00
Machine shop turnings	14.25 to 14.75
Cast iron borings	14.50 to 15.00
No. 1 busheling	18.50 to 19.50
Stove plate	16.50 to 17.00
Grate bars	14.50 to 15.00
Bundled sheets	14.00 to 15.00
Hydraulic compressed	18.50 to 19.00
Railroad malleable	20.50 to 21.00
No. 1 machinery cast	18.50 to 19.00

Perry Iron Co. Lets Contract for By-Product Coke Plant at Erie, Pa.

The Perry Iron Co. has placed the general contract for its by-product coke oven plant in connection with its furnace at Erie, Pa., with the Wilputte Coke Oven Corporation, New York. This plant will have 37 ovens. All the coke will be consumed by the Perry furnace and the gas will be sold to the Pennsylvania Gas Co., to be mixed with natural gas to supply the city of Erie. It is planned to have the ovens in operation late in the year. They will be operated by Pickands, Mather & Co., Cleveland, owners of the Perry Iron Co.

STEEL AND INDUSTRIAL STOCKS

The range of active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers ..	70⅝	75¼	Int. Har.	107	110⅝
Allis-Chal. pf....	102	104¼	Int. Har. pf.....	114½	115½
Am. B. S. & Fdy.	97⅛	102	Jones & L'lin pf.	111¼	111¼
Am. B.S. & F. pf.	110	110	Lima Loco.	69½	71⅝
Am. Can	154⅝	168½	Midvale Steel ..	28½	29⅞
Am. Can pf.....	115	116⅝	Nat.-Acme	6¼	6¾
Am. Car & Fdy..	191	207	Nat. En. & Stm..	31½	34¾
Am. C. & F. pf..	124	124	Nat. En. & S. pf.	81	81
Am. Locomotive.	105½	109¾	N. Y. Air Brake.	54½	57
Am. Loco. pf....	119	119⅞	Otis Steel	9⅝	10⅝
Am. Radiator ..	89⅞	134	Otis Steel pf....	62	62
Am. Steel Fdries.	47	49	Pressed Steel Car	59	66
Am. Stl. Fd. pf..	107½	107¾	Pressed Steel pf.	85¼	92½
Bald. Loco.	129¾	133½	Replogle Steel ..	20	22
Bald. Loco. pf..	116	116	Republic	61½	64⅝
Beth. Steel	49¾	52⅞	Republic pf.	93½	94
Beth. Stl. 7% pf.	94	95⅞	Sloss-Sheffield ..	82	86½
Beth. Stl. 8% pf.	109	110⅛	Sloss-Sheffield pf.	95	95⅞
Br. Em. Steel...	3	3	Superior Steel ..	32	35
Br. Em. Stl. 1 pf.	31½	31½	Transue-Wms. ..	31	32
Br. Em. Stl. 2 pf.	7⅝	9⅛	Un. Alloy Steel..	27½	29
Chic. Pneu. Tool	96⅝	100⅞	U. S. Pipe.....	164½	170
Colo. Fuel	42	44¼	U. S. Pipe pf....	104	104
Crucible Steel ..	72¾	78	U. S. Steel.....	118⅜	123¼
Crucible Stl. pf..	93	93½	U. S. Steel pf...	122½	122⅞
Gen. Electric ...	294½	322	Vanadium Steel..	29¼	41⅝
Gt. No. Ore Cert.	33⅞	36⅞	Va. I., C. & C. pf.	79	79
Gulf States Steel	85⅜	91¼	W'house Air Br.	106	109¼
Inland Steel	46⅞	47⅞	Y'gstown S. & T.	69½	70

Industrial Finance

Approximately $10,200,000 face amount of the Wickwire Spencer Steel Corporation first mortgage 7 per cent sinking fund bonds, constituting more than 80 per cent of those outstanding, had been deposited, as of Dec. 23, under the agreement dated Aug. 4, 1924. Holders of certificates of deposit received interest on the bonds due Jan. 1.

A group of international bankers has sold $10,000,000 7 per cent five-year merchandise secured gold dollar notes of Fried. Krupp, Ltd. (Fried. Krupp Aktiengesellschaft), the large German iron and steel manufacturing corporation. The notes were sold at 99¼ and accrued interest, yielding about 7.18 per cent on the investment.

The Hartford Tube Products Co., coil maker of steel, iron, copper and brass ammonia receivers, Hartford, Conn., has voted to liquidate the business and dissolve the corporation. Buildings, real estate, all equipment and material are for sale. I. I. Ingraham, P. O. Box 1232, Hartford, is liquidating agent.

A voluntary petition in bankruptcy has been filed in behalf of the Roberts Brothers Mfg. Co., 5401 South Western Avenue, manufacturer of steel specialties. The petition listed liabilities at $240,007, with assets at $501,231. A large part of the company's capital is tied up in real estate investments.

The Niagara Falls Smelting & Refining Corporation, Buffalo, has declared the regular quarterly dividend of 7 per cent payable Jan. 15 to stock of record Dec. 30. The company has paid 7 per cent annually since its incorporation. Ernest G. Jarvis, vice-president and general manager, stated that a substantial surplus has been carried from last year's earnings and that the capacity of the plant was tripled during the year.

The United States Radiator Co. has declared a dividend of $2 per share on common stock for the year 1924 and a quarterly dividend of $1 per share.

The Security Trust Co., Detroit, has been appointed receiver for the Vulcan Motor Axle Corporation, which reports assets of about $475,000 on a basis of a going business, and liabilities of about $300,000. The receiver has been asked to invite propositions for reorganization.

The J. I. Case Threshing Machine Co., on Dec. 1 had reduced its bills payable to $3,350,000, compared with $4,977,500 on Dec. 1, 1923.

Los Angeles newspapers erroneously reported Dec. 30 that the W. T. McFie Supply Co., 213-225 North Los Angeles Street, Los Angeles, Cal., had suffered a fire loss. The only damage from the fire in the building adjoining the company's warehouse No. 2 was a slight water damage to a small stock of cone head rivets in the corner of the basement.

The Miles Machinery Co., Saginaw, Mich., has purchased the entire equipment of the Simplex Wire Wheel Co., Cadillac, Mich., and will offer 30 or 40 machine tools and miscellaneous equipment for sale direct from the plant at Cadillac. The Simplex Wire Wheel Co. was developing a wire wheel but never got into production.

Increasing Manufacturing in the Baltimore District

Total investment in new industries and expansions of established industries in Baltimore during 1924 amounted to $25,172,050 and the number of wage earners given employment by these enterprises increased 6472, according to H. Findlay French, director, Industrial Bureau, Baltimore Association of Commerce. This investment is compared with $15,992,500 for 1923.

"Forty-one new industries were announced for Baltimore during the past year," said Mr. French. "Plant investment totals $5,892,500 (a 31 per cent increase over 1923), with additional labor requirements of 2993. Expansions of 134 plants during the same period represents an investment of $19,279,550, and required 3479 workers.

"Larger capital was invested in foundry, iron and steel and machine shop work than in any other line during the past year. The largest expansion was carried out at the Sparrows Point plant of the Bethlehem Steel Co. Between $7,000,000 and $8,000,000 was invested in a new rod and wire plant, in doubling the capacity of its tin plate mill, in modernizing its rail mill and in blast furnace improvements and other improvements.

"A new rod and wire plant is in course of erection by the Baltimore Copper Smelting & Rolling Co. at a cost of $1,000,000. The Curtis Bay Copper & Iron Works added a drop forge department to its facilities; the Hollow Ball Co., manufacturer of a patented metal ball, opened a new plant for quantity production; A. K. Robins Co., maker of canning machinery, moved into a new and larger building; the Maryland Penitentiary added largely to its foundry shop; the Peerless Electro Products Co., Atlas Machine & Piston Ring Co., Commerce Iron Works, Monumental Machine Co. and Charles A. Bowers opened new machine shops; while the Holtson Mfg. Co., Black & Decker Mfg. Co., Autogenous Co., Maryland Steel Products Co. and the Caroline Foundry added to manufacturing space.

"The plant of the Standard Sanitary Mfg. Co., which has been under construction all year, will go on a production basis in January, and will shortly thereafter be employing 1200 to 1500 workers."

Among the new plants listed as starting operations during 1924 are the White Metals Products Co., solder; Gatch Wire Goods Co. and the Baltimore Retinning Co.

Among the expansions are a $250,000 unit for the Locke Insulator Corporation, addition to the Parker Metal Decorating Co., addition to the Air Reduction Co. plant and a shipwrecking plant for the Boston Iron & Metal Co.

Cost of Repairing Railroad Equipment at Outside Shops Held to Be Excessive

The cost of repairs to locomotives and cars of the Erie Railroad Co., at outside shops during 1920, 1921, 1922 and 1923 is held to have been greatly in excess of the cost of similar work in the Erie's own shops, in a report of an investigation by the Interstate Commerce Commission. It is stated in the commission's report, which is designated as No. 12066, that a large part of such excess costs was an unreasonable expenditure for maintenance of equipment and not in the interest of economical management.

The report deals with a contract entered into on Aug. 9, 1920, for repair of eight locomotives on a cost plus basis, and another contract for repairs to 45 Russian decapod locomotives during 1921. The chief reason advanced for these repairs in outside shops was the financial condition of the respondent, the Erie company, at that time.

During October, 1923, this investigation was reopened as to the respondent's locomotive equipment and in February, 1924, as to all of its equipment. A further hearing was had with respect to repairs to locomotives and cars made during the latter part of 1921, 1922 and 1923. During this period, there were 213 locomotives repaired in outside shops, 106 of which received classified repairs and 107 unclassified repairs. Written contracts were made with 16 shops and in three other shops repairs were made without written contracts. Two of the contracts were made prior to the shopmen's strike of July 1, 1922, and the remainder subsequent thereto.

Criticism of the commission is not directed to the fact that the equipment was sent to outside shops but to the unreasonable and excessive costs for repairs at such shops.

Increased Shipments in the Valleys

Freight movement in the Mahoning and Shenango Valleys shows acceleration this week, affecting finished steel products, but December shipments, especially the last half, lagged because of the holiday season. Both for industrial and domestic consumption, coal shipments are heavy. Steel companies, already well fortified in the matter of coal reserves in this district, are adding to stock piles.

In December the ore movement from Lake docks to inland furnaces showed a recession because of the extremely cold weather prevailing at different periods. Ore freezing at the Lake ports is difficult to load into cars. Ore supplies at Lake points are reported smaller than last year at this time, as orders were pared down during the summer when production of blast furnaces reached a low point.

Ore piles at furnace yards are sizable, but with iron production at the highest rate in more than a year, and with likelihood of expansion in the number of active blast furnaces, depletion of ore stocks before next May, when navigation will be resumed, will take place to the point of near-exhaustion in some cases.

Suit to Compel Labor Union to Produce Records

WASHINGTON, Jan. 6.—The Federal Trade Commission has filed a suit in the United States District Court for the Eastern District of Maryland in an effort to compel the American Association of Photo Engravers and the International Photo Engravers' Union to submit records of union minutes and other documents of the labor unions. This action is in many respects similar to that taken by the commission in its case against the Claire Furnace Co. It has created unusual interest because it is directed against organized labor, which has been rather a warm supporter of the Federal Trade Commission and its activities. It also is exceptional for a government body to attempt by subpœna to compel organized labor to produce private records. The suit is filed in connection with the proceedings the commission has instituted against the two organizations which were halted at St. Louis when the Photo Engravers' Union declined to produce certain minutes. The commission has charged both organizations with violation of the Sherman law.

It is claimed that the Photo Engravers Employers' Association and the Photo Engravers' Unions entered into an agreement to fix and maintain prices and that members of the associations were required to adhere to the agreement or lose their standing as members. It also is alleged that the unions agreed to allow their members to work only in shops where the management was affiliated, in good standing, with the employers' association. Facts are set forth in the petition intended to show that numerous strikes were called in New York City and elsewhere by the Photo Engravers' Union to enforce terms of the agreement said to have been made with employers.

Authority for the erection of two bridges over the Ohio River was contained in bills passed by the United States Senate Dec. 30. One bridge will connect Portsmouth, Ohio, with Fullerton, Ky., and is to be erected by the Portsmouth-Fullerton Bridge Co., recently organized by citizens of Portsmouth, Ohio, and adjacent points. The other bridge is to be built by a company organized at Huntington, W. Va., and will cross the river at that point. It is expected that bids for the erection of both structures will be taken soon.

FABRICATED STEEL BUSINESS

Awards Decline Sharply, but New Projects Expand—Flushing Bridge Calls for 7000 Tons

A sharp falling off in structural steel awards took place in the first week of the year, or about 31,000 tons, compared with 51,000 tons for the previous week. No large projects were included. Fresh inquiries at nearly 25,000 tons registered an increase. Bridge work accounted for over half at 13,500 tons, the largest being 7000 tons for the Flushing subway bridge. Among the awards are the following:

Academy of Medicine, New York, building, 2000 tons, general contract to Marc Eidlitz & Son, steel to unnamed fabricator.

Factory building, Long Island City, New York, 800 tons, to Levering & Garrigues Co.

George Bagge, New York, apartment house, 121 West Seventy-Fourth Street, 500 tons, to Taylor-Fichter Steel Construction Co.

Theater, Corona, Long Island, 400 tons, to George A. Just Co.

Loft building, West Twenty-Ninth Street, New York, 1500 tons, to Harris Structural Steel Co.

Apartment house, East Ninety-Seventh Street, New York, 900 tons, to Paterson Bridge Co.

Loft building, Seventh Avenue, New York, 1500 tons, to Paterson Bridge Co.

Scranton Times, Scranton, Pa., building, 650 tons, to McClintic-Marshall Co.

City of Philadelphia, public school No. 34, 850 tons, to New York Shipbuilding & Dry Dock Co.

Public Service Production Co., boiler house at Harrison, N. J., 300 tons, to Phoenix Bridge Co.

Atlantic Coast Line Railroad, bridge, 300 tons, to unnamed fabricator.

Joseph G. Gilbert, New York, building, 1200 tons, reported awarded to Taylor-Fichter Steel Construction Co.

Fred T. Ley & Co., New York, apartment house, Fifty-Seventh Street and Madison Avenue, 1500 tons, to Levering & Garrigues Co., and building at John and Gold Streets, New York, 2500 tons, reported placed with McClintic-Marshall Co.

Hotel Morgantown, Morgantown, W. Va., 500 tons, to Guibert Steel Co.

Elks' Club, North Side, Pittsburgh, 125 tons, to Guibert Steel Co.

Louisville & Nashville Railroad, bridge work, 1100 tons, to McClintic-Marshall Co.; 150 tons each to Mount Vernon Bridge Co. and Virginia Bridge & Iron Co.

Wabash Portland Cement Co., plant at Osborn, Ohio, 1200 tons, to Indiana Bridge Co.

Starks Building, Louisville, Ky., 3200 tons, to McClintic-Marshall Co.

Bridge over Kaskaskia River, Randolph County, Ill., 527 tons, to unnamed fabricator.

Weil-McLain Co., Michigan City, Ind., extension to foundry, 278 tons, to American Bridge Co.

Fridley filteration plant, Minneapolis, pump house, boiler building and connecting rooms, 203 tons, to Crown Iron Works.

Columbia Quarry Co., Columbia, Ill., building, 400 tons, to Mississippi Valley Structural Steel Co.

Knights of Columbus building, San Jose, Cal., 250 tons, to Pacific Rolling Mill Co.

Barker Brothers building, Los Angeles, 4000 tons, to Llewellyn Iron Works.

Dix Avenue, bascule bridge, Detroit, 1500 tons, to Wisconsin Bridge & Iron Co.

Garage, Cambridge, Mass., 104 tons, to New England Structural Co.

Narrangansett Electric Light Co., Providence, R. I., coal pocket, 400 tons, to New England Structural Co.

Apartment house, Boston, 400 tons, to New England Structural Co.

Theater, Boston, 350 tons, to Boston Bridge Works.

White Swan Hotel, Uniontown, Pa., 200 tons, to Jones & Laughlin Steel Corporation.

Homeopathic Hospital, Pittsburgh, addition, 375 tons, to Jones & Laughlin Steel Corporation.

Central Steel Co., Massillon, Ohio, bridge crane and car dumper, 1000 tons, to Alliance Machine Co.

Ashtabula, Ohio, lift bridge, 400 tons, to Kelly-Atkinson Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Anaconda Copper Mining Co., plant at Miami, Ariz., 1600 tons.

Sidney, Mont., beet sugar plant, 700 tons.

City of New York, double-decked bascule bridge over Flushing Bay at Roosevelt Avenue, 7000 tons.

Louisville & Nashville Railroad, Green River bridge, 1300 tons; offices, shops and storerooms, 150 tons.

Angel City baseball park, Los Angeles, Cal., 1500 tons.

Apartment hotel, Louisville, Ky., 2000 tons.

Gettysburg, S. D., bridge, 1500 tons, bids to close January 13.

Washington State Highway Department, bridge, 2300 tons.

Roanoke Building, Chicago, thirty-four story addition, tonnage not estimated; plans being prepared by Holabird & Roche, Chicago.

Union Station, Chicago, addition, 5000 tons, bids asked.

Famous & Barr Co., St. Louis, warehouse, 400 tons.

Citizens' Mortgage Building, Los Angeles, 1000 tons.

High school, Mansfield, Ohio, 200 tons.

Chapman Valve Mfg. Co., Indian Orchard, Mass., machine shop, 225 tons.

RAILROAD EQUIPMENT BUYING

Car Purchases Heavier Than in Many Weeks—Inquiries From Two Railroads

Car orders placed in the closing days of 1924 and the early days of 1925 reached a total of 5000, the largest number in many weeks. New inquiry covered about 2000 cars. Of the car purchases Baltimore & Ohio awarded a total of 3000, and in addition closed on 2000 box car bodies with the Pullman company. Of the 2000 cars on inquiry 1000 are for the Delaware, Lackawanna & Western and 1000 for the New York Central.

The Northern Pacific has awarded 500 steel underframes to the Ryan Car Co.

The Chicago, Burlington & Quincy has closed on 500 50-ton automobile cars and 1500 40-ton automobile cars with the Pullman Car & Mfg. Corporation.

The Baltimore & Ohio has placed 2500 70-ton gondola cars with the Standard Steel Car Co. and 500 with the General American Tank Car Corporation, and 2000 box car bodies with the Pullman Car & Mfg. Corporation.

The Delaware, Lackawanna & Western is in the market for 1000 box cars.

The Missouri Pacific has ordered 9 baggage and mail cars and 6 divided coaches from the Pullman Car & Mfg. Corporation and 10 baggage, 10 mail storage and 1 combination coach and mail car from the American Car & Foundry Co.

The Reading has placed 5 baggage and mail cars with the American Car & Foundry Co. and an equal number with the Bethlehem Steel Corporation.

The New York Central has issued an inquiry for 1000 55-ton steel gondola cars, but is expected to buy several times that number.

The Chicago & Western Indiana has placed 5 switching locomotives with the Baldwin Locomotive Works.

New High Prices on Scrap at Chicago

DETROIT, Jan. 6.—**The recent offering of one of the largest producers of approximately 4500 tons miscellaneous scrap for January delivery established new high prices and developed a lot of activity on the part of dealers. All grades of blast furnace material showed increases. Heavy melting and shoveling steel registered new high prices of $19.10, hydraulic compressed over $18 and flashings as high as $16. The opinion generally is that there is a great deal of strength to the market and a good many dealers are going long on present price levels.**

Heavy melting steel	$18.50 to $19.25
Shoveling steel	18.50 to 19.25
Borings and short turnings	14.50 to 15.00
Long turnings	14.00 to 14.50
No. 1 machinery cast	18.50 to 19.00
Automobile cast	19.50 to 20.50
Hydraulic compressed	17.50 to 18.25
Stove plate	16.50 to 17.50
No. 1 busheling	14.75 to 15.25
Sheet clippings	13.00 to 14.00
Flashings	14.50 to 15.50

Reduction in Malleable Castings Production

November figures from 141 plants making malleable castings show production of 47,981 tons, compared with 50,066 tons in October. Except for October, the November figure is the largest since May. It compares with 52,727 tons in November, 1923. Shipments in November at 44,063 tons showed a slight falling off.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
Dec.	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
30.....	15.00	14.62½	58.70	10.15	10.00	8.15	7.80
31.....	15.00	14.62½	58.62½	10.15	10.00	8.15	7.80
Jan.							
2.....	15.00	14.75	59.87½	10.15	10.00	8.17½	7.82½
3.....	15.00	14.75	....	10.15	10.00	8.17½	7.82½
5.....	15.25	14.87½	60.50	10.25	10.00	8.20	7.85
6.....	15.25	14.87½	59.87½	10.25	10.00	8.20	7.85

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Jan. 6.

As is usual the markets are quiet during the first week of the new year, the taking of inventories causing a slackening in buying. Copper is nominally higher and firm. The scarcity of lead continues to result in higher prices. Prices of tin continue to advance with the increased value of sterling exchange. The zinc market is slightly higher.

Copper.—Practically all producers are asking 15.12½c., delivered, for electrolytic copper, but domestic demand is so light as the year starts that this price may not have been established by sales. The last sales were made at 15c., but the position of producers is so strong that it is asserted that metal at that price can no longer be obtained. The export market is also quiet, but inquiry is a little more active than from domestic consumers. Lake copper is quoted in a quiet market at 15.25c., delivered.

Copper Averages.—The average price of Lake copper for the month of December, based on daily quotations in THE IRON AGE, was 14.58., delivered. The average price of electrolytic copper was 14.22½c., refinery, or 14.47½c., delivered.

Tin.—For the week ended with Saturday, Jan. 3, business in good volume was done, with the total close to 1500 tons, most of it taken by consumers making tin plate. All the days were fairly active. Yesterday a rather strange situation developed in that consumers, who were willing to pay most anything for tin the week previous, remained aloof from the market so that it became stagnant and only small lots, none as high as 25 tons, changed hands. Today the market has been very active with sales of close to 700 tons. Spot Straits tin was quoted at 59.87½c., New York. In London there was a fairly sharp decline today with spot standard quoted at £273 5s., future standard at £277 5s. and spot Straits at £276 5s. This is a decline of £3 to £4 per ton from quotations yesterday. Statistics for December show that 4085 tons were delivered into consumption with 2844 tons in stock and landing Dec. 31. The imports for the year were 65,317 tons. The strength of the market is generally attributed to an attitude by both consumers and sellers of looking further ahead. The disappearance of the invisible supply and a slight increase in the visible supply are also factors. It is believed that American consumers, however, are not yet fully covered for their needs for the first half.

Lead.—An appraisal of market values for lead continue most difficult and uncertain. The scarcity persists and transactions are on a small scale. There is no breadth to the market. In the last week the leading interest raised its contract price twice to 9.75c. on Jan. 2 and to 10c., New York, on Jan. 5. The leading producer in the outside market followed with an advance to 9.75c., St. Louis, at which only a limited tonnage is available. In the outside market prices range from 9.75c. to 10.25c., St. Louis, and as high as 10.40c., New York. The market is quotable at an average of about 10c., St. Louis, or 10.25c., New York.

Zinc.—The market is exceedingly quiet but firm with prime Western zinc for early delivery quoted at 7.85c., St. Louis, or 8.20c., New York.

Nickel.—Wholesale lots of shot and ingot nickel are quoted unchanged at 29c. to 30c. per lb., with electrolytic nickel at 33c.

Antimony.—The situation continues firm with Chinese antimony quoted at 18c., New York, duty paid, for prompt and January delivery, with future delivery at slightly lower values.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—Prices continue to advance on a strong and active market. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	14.50
Copper, heavy and wire	13.50
Copper, light and bottoms	11.75
Heavy machine composition	11.00
Brass, heavy	9.50
Brass, light	8.00
No. 1 red brass or composition turnings	10.00
No. 1 yellow rod brass turnings	9.75
Lead, heavy	9.25
Lead, tea	8.00
Zinc	5.25
Cast aluminum	18.50
Sheet aluminum	18.50

Chicago

JAN. 6.—Tin has advanced and antimony has declined, while the other metals remain unchanged. The market is quiet, but the metals are strong and further advances are looked for. Lead is particularly slow, but this is not surprising in view of the fact that lead is the highest since 1917 and lead ore is the highest on record. All of the old metal grades have advanced. We quote, in carload lots: Lake copper, 15.25c.; tin, 60.50c.; lead, 10.25c.; spelter, 7.90c.; in less than carload lots, antimony, 17.50c. On old metals we quote copper wire, crucible shapes and copper clips, 12.50c.; copper bottoms, 10.75c.; red brass, 9.75c.; yellow brass, 8.50c.; lead pipe, 8.75c.; zinc, 5c.; pewter, No. 1, 30c.; tin foil, 42c.; block tin, 50c.; all buying prices for less than carload lots.

Lead Mining and Smelting Gains

Preliminary figures of the Geological Survey show an increase of 8 per cent in lead mining in the United States in 1924 and a gain of 15 per cent in smelting and refining. The total mine output is given as 588,000 net tons, of which 276,000 tons came from mines in the Mississippi Valley and the Eastern States and 312,000 tons from the Western States. The figures for 1923 showed a total of 545,591 tons, of which 257,688 tons were from the Mississippi Valley and Eastern States and 287,903 tons from the Western States. The Southeastern Missouri district made the largest output, with 192,000 tons, a gain of 15 per cent over the 167,458 tons in 1923.

Output of refined lead from domestic ores in 1924 was about 591,000 net tons, compared with 543,841 tons in 1923. These totals were augmented in each year by lead smelted and refined from foreign ore and bullion, the output from this source being 119,000 tons in 1924, compared with 74,481 tons in 1923. This makes the total in 1924 about 710,000 tons, compared with 618,322 tons in 1923.

Proposed Rates on Sewer Pipe Suspended

WASHINGTON, Jan. 6.—The Interstate Commerce Commission has suspended from Jan. 1 to May 1 the operation of tariff schedules proposing to increase the rates on sewer pipe in carloads from producing points in Alabama, Georgia and Tennessee to South Atlantic ports.

The following, stated in cents per 100 lb., is illustrative:

	From Campania, Ga.		From Birmingham, Ala.	
To	Present	Proposed	Present	Proposed
Charleston, S. C....	11	15½	17	22½
Jacksonville, Fla...	13	18½	17	22
Savannah, Ga.....	11½	15½	17	21

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.....2c. to 2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.....2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb.....2.10c.
Soft steel bars f.o.b Chicago, base, per lb.....2.10c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb....2.10c.
Rails steel bars f.o.b. Chicago district mills, base, per lb...2c.
Common iron bars f.o.b. Chicago, base, per lb.....2c.
Refined iron bars f.o.b. P'gh mills, base, per lb..2.90c. to 3.00c.
Common iron bars, eastern Pa. mill, base, per lb.....2.10c.

Hot-Rolled Flats

(Pittsburgh)

Hoops, base, per lb.....2.50c.
Bands, base, per lb.....2.40c. to 2.50c.
Hoops and bands, narrower than 1-in., base per lb.....2.75c.
Strips, 10 in. and wider, base, per lb.....2.25c. to 2.35c.
Strips, less than 10 in. wide to 3 in.....2.40c. to 2.50c.
Strips, 3 in. wide and less, base, per lb.....2.50c. to 2.60c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb..2.80c.
Screw stock and shafting, f.o.b. Chicago, base, per lb..2.80c.
Screw stock, Worcester mills, base, per lb.....3.00c.
Screw stock, base, per lb., Cleveland.....2.85c.
Shafting, ground, f.o.b. mill, base, per lb.....3.20c.
Strips, f.o.b. P'gh mills, base, per lb.....4.00c. to 4.15c.
Strips, f.o.b. Cleveland mills, base, per lb.....4.15c.
Strips, f.o.b. Chicago mills, base, per lb.....4.45c.
Strips, f.o.b. Worcester mills, base, per lb.....4.30c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per keg..... $2.85
Galvanized nails, 1-in. and longer, base plus..... 2.25
Galvanized nails, shorter than 1-in., base plus..... 2.50
Bright plain wire, base, No. 9 gage, per 100 lb..... 2.60
Annealed fence wire, base, per 100 lb..... 2.75
Galvanized wire No. 9, base, per 100 lb..... 3.20
Galvanized barbed, base, per 100 lb..... 3.55
Galvanized staples, base, per keg..... 3.55
Painted barbed wire, base, per 100 lb..... 3.30
Polished staples, base, per keg..... 3.30
Cement coated nails, base, per count keg..... 2.25
*Bale ties, carloads to jobbers....75, 15 and 5 per cent off list
*Bale ties, carloads to retailers....75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.....67.00

Chicago district mill prices are $2 per ton above the foregoing and Chicago delivered prices are $3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices $3 a ton higher; Worcester, Mass., mills $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed
(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh dist. mill.....2.70c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills..2.80c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.....3.60c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.70c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.....4.75c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....4.85c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh dist mill.....3.60c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.70c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. mill.....4.75c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill.....4.90c.

Tin Plate

Standard cokes, per base box f.o.b. Pittsburgh district mills $5.50
Standard cokes, per base box f.o.b. Chicago district mills 5.60
Standard cokes, per base box f.o.b. Elwood, Ind..... 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.20	20-lb. coating I. C.	$15.50
8-lb. coating I. C.	11.50	25-lb. coating I. C.	17.00
15-lb. Coating I. C.	14.35	30-lb. coating I. C.	18.35
		40-lb. coating I. C.	20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb..$2.60
Large, f.o.b. Chicago, base, per 100 lb..... 2.75
Small, f.o.b. P'gh and Cleveland mills
70, 10 and 5 per cent off list
Small (freight allowed within zone limits).....70 off list

Rails and Track Equipment

(F.o.b. mill)

Rails, standard, per gross ton.....$43.00
Rails, light, billet, base, per lb.....1.80c. to 1.90c.
Rails, light rail steel, base, per lb.....1.65c. to 1.75c.
Spikes, 5/16 in. and larger, base, per 100 lb.....$2.90 to $3.20
Spikes, 1/2 in. and smaller, base, per 100 lb..... 3.00 to 3.50
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.80 to 4.25
Tie plates, per 100 lb..... 2.35 to 2.50
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
1/8	45	19 1/2	1/4 to 3/8	+11	+39
1/4 to 3/8	51	25 1/2	1/2	22	2
1/2	56	42 1/2	3/4	28	11
3/4	60	48 1/2	1 to 1 1/2	30	13
1 to 3	62	50 1/2			

Lap Weld

2	55	43 1/2	2	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	28	13
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

1/8	41	24 1/2	2 to 3	61	50 1/2
1/4 to 3/8	47	30 1/2	1/4 to 3/8	+11	+54
1/2	53	42 1/2	1/2	21	7
3/4	58	47 1/2	3/4	28	12
1 to 1 1/2	60	49 1/2	1 to 1 1/2	30	14

Lap Weld, extra strong, plain ends

2	53	42	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	7
9 and 10	45	32 1/2	9 to 12	16	2
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1 1/2 points, with supplementary discount of 5 per cent.

NOTE—The above discounts on steel pipe also apply at Lorain and Youngstown, Ohio, and Wheeling, W. Va. Chicago district mills have a base 2 points less. Chicago delivered base 2 1/2 points less.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel		Charcoal Iron	
2 to 2 1/4 in.	27	1 1/2 in.	+18
2 1/2 to 2 3/4 in.	37	1 3/4 to 1 7/8 in.	+ 8
3 in.	40	2 to 2 1/4 in.	— 2
3 1/4 to 3 3/4 in.	42 1/2	2 1/2 to 3 in.	— 7
4 to 13 in.	46	3 1/4 to 4 1/2 in.	— 9

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes
Cold Drawn

1 in.	55-58	3 and 3 1/4 in.	36-39
1 1/4 and 1 1/2 in.	47-50	3 1/2 and 3 3/4 in.	37-40
1 3/4 in.	31-34	4 in.	41-44
2 and 2 1/4 in.	22-25	4 1/2 in. and 5 in.	33-37
2 and 2 3/4 in.	32-35		

Hot Rolled

3 and 3 1/4 in.	38-41	4 in.	43-46
3 1/2 in. and 3 3/4 in.	39-42		

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....85 to 87 per cent off list
Carbon 0.30 to 0.40 base.....83 to 85 per cent off list
Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.		Cents per Ft.
2-in. O.D. 12 gage	15	2 1/4-in. O.D. 10 gage	20
2-in. O.D. 11 gage	16	3-in. O.D. 7 gage	35
2-in. O.D. 10 gage	17	1 1/2-in. O.D. 9 gage	15
2 1/4-in. O.D. 12 gage	17	5 5/8-in. O.D. 9 gage	55
2 1/4-in. O.D. 11 gage	18	5 1/2-in. O.D. 9 gage	57

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron	$5.65
Old range non-Bessemer, 51½ per cent iron	4.90
Mesabi Bessemer, 55 per cent iron	5.40
Mesabi non-Bessemer, 51½ per cent iron	4.75

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucusus, nominal	42c.
Manganese ore, ordinary, 48 per cent manganese from the Caucasus	40c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	$8.75 to $9.00
Chrome ore, basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f., Atlantic seaboard	18.50 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	80c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt	$4.15 to $5.00
Foundry coke, f.o.b. Connellsville prompt	5.00 to 6.00
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.10
Mine run coking coal, f.o.b. W. Pa. mines	2.00 to 2.10
Mine run gas coal, f.o.b. W. Pa. mines	2.25
Steam slack, f.o.b. W. Pa. mines	1.40 to 1.50
Gas slack, f.o.b. W. Pa. mines	1.50 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$110.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	110.00
Ferrosilicon, 50 per cent, delivered	82.50
Ferrosilicon, 75 per cent	$140.00 to 145.00
Ferrotungsten, per lb. contained metal	90c. to 95c.
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated.)

Spiegeleisen, domestic, 19 t 21 per cent.....$33.00 to $35.00
Spiegeleisen, domestic, 16 to 19 per cent..... 32.00 to 34.00
Ferrosilicon, Bessemer, 10 per cent, $39.50; 11 per cent, $42; 12 per cent, $44.50; electric furnace ferrosilicon 10 to 11 per cent, $38, furnace, with an advance of $1 per unit for material above 10 per cent.
Silvery iron, 5 per cent, $27.00; 6 per cent, $28.00; 7 per cent, $29.00; 8 per cent, $30.50; 9 per cent, $32.50; 10 per cent, $34.50; 11 per cent, $37.00; 12 per cent, $39.50.

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines		$20.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucgy mines		20.00
Fluorspar, foreign, 85 per cent calcium, fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per gross ton		19.75
Per 1000 f.o.b. works:		
Fire Clay:	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	45.00 to 48.00	38.00 to 43.00
Ground fire clay, per ton	6.50 to 7.50	
Silica Brick:		
Pennsylvania		40.00
Chicago		49.00
Birmingham		54.00
Silica clay, per ton	8.00 to 9.00	
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		45.00

Bolts and Nuts

Machine bolts, small rolled threads...60 and 10 per cent off list
Machine bolts, all sizes, cut threads
50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads
50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes..50 and 10 per cent off list
Eagle carriage bolts.....65 and 10 per cent off list
Lag bolts .....60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads....50 and 10 per cent off list
Other style heads .....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in.
45, 10 and 5 per cent off list
Larger and longer sizes.....45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square.....4c. off list
Hot-pressed nuts, blank or tapped, hexagons....4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped.4.10c. off list
Semi-finished hex. nuts:
⅝ in. and smaller, U. S. S.....80, 10 and 5 per cent off list
⅝ in. and larger, U. S. S.....75, 10 and 5 per cent off list
Small sizes, S. A. E.....80, 10, 10 and 5 per cent off list
S. A. E., ⅝ in. and larger....75, 10, 10 and 5 per cent off list
Stove bolts in packages.....80 and 5 per cent off list
Stove bolts in bulk.....80 and 5 and 2½ per cent off list
Tire bolts .....50, 10 and 5 per cent off list
Bolt ends with hot pressed nuts..50, 10 and10 per cent off list
Bolt ends with cold pressed nuts...45, 10 and 5 per cent off list
Washers .....6c. to 6.25c. off list
Lock washers .....80 per cent off list

The foregoing are delivered prices for 1000 lb. or over, except on stove and tire bolts on which a full freight allowance is made on 300 lb. or over, for shipment within established zone limits, buyers outside of the zone paying the additional freight. Washers and lock washers are quoted f.o.b. Chicago and Pittsburgh.

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)
(To jobbers and consumers in large quantities)

	Per 100 Net			Per 100 Net	
	S. A. E.	U. S. S.		S. A. E.	U. S. S.
¼-in.	$0.44	$0.44	¾-in.	$2.35	$2.40
5/16-in.	.515	.515	⅞-in.	3.60	3.60
⅜-in.	.62	.66	1 in.	5.55	5.80
7/16-in.	.79	.90	1⅛ in.	8.90	8.90
½-in.	1.01	1.05	1¼ in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜ in.	18.35	18.35
⅝-in.	1.70	1.73	1½ in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws....80, 10 and 10 to 80 and 10 per cent off list
Milled standard set screws, case hardened
80, 10 and 10 to 80 and 10 per cent off list
Milled headless set screws, cut thread
80, 10 and 10 to 80 and 10 per cent off list
Upset hex. head cap screws, U. S. S. thread
80, 10, 10 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread
80, 10, 10 and 10 per cent off list
Milled studs .....75 and 10 to 75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, Bessemer, 4-in. and over	$37.00 to $38.00
Rolling billets, open-hearth, 4-in. and over	38.00 to 38.50
Forging billets, ordinary carbons	42.50
Sheet bars, Bessemer	38.00 to 40.00
Sheet bars, open-hearth	39.00 to 40.00
Slabs	37.00 to 38.00
*Wire rods, common soft, base, No. 5 to ⅜-in.	48.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	2c.
Skelp, sheared, per lb.	2c.
Skelp, universal, per lb.	2c.

*Chicago mill base is $50. Cleveland mill base, $48.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100*(1¼% Nickel, 10 to 20 per cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.75
2500 (5% Nickel)	6.25 to 6.50
3100 (Nickel Chromium)	3.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200*(Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25
6100 (Chromium Vanadium spring steel)	4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4c.
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

PERSONAL

A number of promotions and changes in the sales department of the Jones & Laughlin Steel Corporation, effective Jan. 1, are announced by S. E. Hackett, vice-president in charge of sales. C. S. Bradley, who has been manager of sales, hot rolled department, becomes general manager of sales. R. T. Rowles, who has been in charge of the company's Philadelphia office, goes to Pittsburgh as manager of sales, hot-rolled department. Mr. Rowles is succeeded at Philadelphia by Thomas C. Ham, who has been assistant manager export department, New York. William P. Dixon, who has been in the export sales department at Pittsburgh, goes to New York to replace Mr. Ham. Andrew W. Herron, who has been assistant to Mr. Hackett, has been appointed Cincinnati district sales manager. Appointment also is announced of Thomas W. Bell as Los Angeles district sales manager and of George D. Branston as manager of sales, railroad materials, with headquarters in Pittsburgh. Mr. Bell, before going to the Pacific Coast for the company about a year ago to handle the pipe business from the San Francisco office, was in the general pipe sales department at Pittsburgh. Mr. Branston prior to joining the Jones & Laughlin Steel Corporation was with Manning, Maxwell & Moore, Inc., New York.

A. J. Besselo, formerly general agent at Detroit of the Gulf, Mobile & Northern Railroad, has been appointed traffic manager of the Standard Steel Car Co. He will make his headquarters in the company's general offices in Pittsburgh.

John Heller, for a long time a director of the International Oxygen Co., Newark, N. J., has been appointed sales manager.

A. G. Agnew has been appointed treasurer of the Stewart Mfg. Co., Waterloo, Iowa, having resigned his position as vice-president of the Waterloo Bank & Trust Co.

H. S. Tullock, president Missouri Valley Bridge & Iron Co., Leavenworth, Kan., will address the meeting of the Associated General Contractors of America at Washington, Jan. 12, on "Curbing the Irresponsible Contractor."

Peter E. Martin, who has been with the Ford Motor Co. for 21 years and who was one of the four men associated with Henry Ford in his early efforts in manufacturing, recently was appointed first vice-president, in charge of manufacturing.

Georges Demerbe, representing Laminoirs de Jemappes, near Mons, Belgium, following a visit over the last two months to steel plants at Bethlehem, Pittsburgh, Youngstown and Chicago, returns to Europe on the Paris this week.

Frank L. Brown of Pittsburgh, vice-president Columbia Steel & Shafting Co., recently was elected treasurer of the Edgar T. Ward's Sons Co., Newark, N. J., importer of tool steels.

George M. Brill, specializing in investigations for industrial and financial purposes, including advice on use of industrial properties, improvements in plants and processes and production problems, has moved his consulting engineering offices to 72 Pine Street, New York.

H. S. Molony, sales manager Foster Machine Co., Elkhart, Ind., has resigned.

H. L. Sterry has been transferred from the factory of Warner & Swasey, Cleveland, to the Chicago district sales office, succeeding W. K. Bailey, recently appointed manager of the Cleveland sales territory.

E. P. Essley, secretary E. L. Essley Machinery Co., Chicago, has assumed the duties of sales manager recently vacated by the resignation of James J. Shanahan, general manager. Other departments formerly handled by the general manager will come under the direct supervision of E. L. Essley, president.

G. D. Troop, northern Indiana representative of the Foster Machine Co., Elkhart, Ind., has resigned.

George E. Carlin, for many years identified with the foundry industry in the Chicago district, and a past president of the Chicago Foundrymen's Club, has been appointed foundry superintendent for the Globe Malleable Iron & Steel Co., Syracuse, N. Y.

D. E. Sawyer, formerly general sales manager of the Pollak Steel Co., Cincinnati, has been appointed vice-president of the Wanner Malleable Castings Co., Hammond, Ind.

Henry D. Scott, general superintendent of the Yorkville, Ohio, plant, Wheeling Steel Corporation, has been promoted to assistant to Andrew Glass, vice-president in charge of operations with headquarters at the company's general offices in Wheeling. Thomas J. Murphy, who has been assistant general superintendent at Yorkville, has been appointed general superintendent in succession to Mr. Scott.

Frank A. Scott, past president of the Cleveland Engineering Society, has been appointed chief of the Cleveland ordnance district of the U. S. Army. He succeeds Col. Bascom Little in this position. Mr. Scott's duties will involve the coordination of industries in Ohio for the production of munitions for national defense in time of an emergency. During the first eight months of the war Mr. Scott was chairman of the General Munitions Board and the War Industries Board at Washington, and participated in organizing the entire productive facilities of the country for war.

Manning, Maxwell & Moore, New York, announce the following changes in the machinery department: Joseph Wainwright, formerly district sales manager at Philadelphia, is appointed eastern sales manager with headquarters at New York. D. M. McDowell has been transferred from New York to Philadelphia as acting district sales manager. W. A. Deems, formerly master mechanic, Baltimore & Ohio Railroad, is appointed sales engineer to cover eastern and southeastern territories. J. Fontes will be in charge of the new sales office opened at Los Angeles. Thomas A. Rees, formerly with Motch & Merryweather and Treadwell Engineering Co., has been engaged as salesman at Pittsburgh. James W. Barr, formerly with American Tool Works and Van Dyck-Churchill Co., and Herbert S. Lester, formerly with Hendey Machine Co., have been engaged as salesmen at New York, and Henry I. Knickerbocker is appointed general office manager, machinery department, New York.

John M. Read, formerly assistant general manager, has been appointed general manager of the N. & G. Taylor Co. works at Cumberland, Md., succeeding the late L. Leslie Helmer. Mr. Read has been identified closely with the management of the plant for the past 15 years.

Gould Coupler Co. Purchased by Charles J. Graham of Pittsburgh

Charles J. Graham, vice-president Graham Bolt & Nut Co., Pittsburgh, has purchased the Gould Coupler Co. and Gould Storage Battery Co., Depew, N. Y. The Gould Coupler Co., capitalized at $5,000,000, manufactures couplers, pilot beams, steel castings, electric car lighting equipment and the like. The storage battery company, capitalized at $250,000, manufactures storage batteries for all purposes. It is made clear in the announcement of the transaction that the purchase was made by Mr. Graham personally and that neither the Graham Bolt & Nut Co. nor the American Railway Appliances Co., in which Mr. Graham is interested, is in any way connected. The only change in the organization of the Gould companies will be the retirement of Commodore Charles A. Gould, the president, who founded the coupler organization about 50 years ago. Commodore Gould will be succeeded as president by his son, W. S. Gould, who has been connected with the company for 30 years, for the past 10 years as vice-president.

OBITUARY

FREDERICK C. RIDDILE, general manager Edgewater Steel Co., Oakmont, Pa., whose death was referred to briefly in THE IRON AGE of Jan. 1, was born near Burgettstown, Pa., 59 years ago and had been identified with the steel industry from early manhood. His first connection with the industry was with the Oliver Iron & Steel Co., Pittsburgh. Later he went with the Railway Steel Spring Co. at Latrobe, Pa., then becoming general superintendent of the old Inter-Ocean Steel Co., Chicago Heights, Ill. He had been general manager of the Edgewater Steel Co. since its organization in 1916. Shortly before his death, Mr. Riddile was elected president of the recently organized Allegheny Valley Trust Co. of Verona, Pa. He was chairman of the Oakmont Board of Trade, a member of the Oakmont School Board, Pittsburgh Field Club and the Oakmont Boat Club. Mr. Riddile always manifested a lively interest in the civic affairs of the cities in which he resided, Latrobe, Chicago Heights and Oakmont. Besides his wife he leaves three sons, J. Van Eman Riddile of the Hubbard Steel Foundry Co., Chicago; Harry Riddile of the American Steel Foundries, St. Louis, and George Riddile, a student at Bucknell University; and two daughters.

F. C. RIDDILE

HENRY IRWIN, JR., treasurer Shenango Furnace Co., Pittsburgh, and a prominent figure in Pittsburgh iron and steel circles for many years, died at his home in Shields, Pa., Jan. 2, after a brief illness of pneumonia. Mr. Irwin was born in Allegheny, Pa., in 1852, of Revolutionary stock. His family was one of the pioneers in western Pennsylvania. His father, Henry Irwin, at one time was mayor of Allegheny, Pa. Mr. Irwin was educated at Professor Wakeham's School and the Western University of Pennsylvania (now University of Pittsburgh). After leaving school, he engaged in the coal business and in 1888 became associated with the late William P. Snyder in the pig iron and steel business. This was shortly after the organization of William P. Snyder & Co. When W. P. Snyder & Co. organized the Shenango Furnace Co. in 1906, Mr. Irwin was elected treasurer and director. He had also served as treasurer and a director of the other Snyder companies. Besides Mrs. Irwin, he is survived by one son, Charles E. Irwin, and two sisters.

CHRISTIAN KIECHLER, founder of the Kiechler Mfg. Co., Cincinnati, died in that city, Sept. 26, aged 88 years. Mr. Kiechler organized the company 60 years ago and, though he retired from the presidency three years ago, retained his interest in the company and occupied his office until within three weeks of his death. He was born in Germany and came to this country at the age of six, residing in Cincinnati since that time. He was recognized as an authority both here and abroad on methods of heat treating steel. He held a number of appointive public offices in Cincinnati and was the inventor of many types of refrigerating machinery, some of which are in universal use.

CHARLES O. LUCAS, founder of the Lucas Pump Co., Dayton, Ohio, died in that city recently, aged 53 years. He is survived by a son and two daughters.

CHARLES H. BONBRIGHT, Flint, Mich., one time president of the Flint Chamber of Commerce and vice-president and general manager of the Imperial Wheel Co., that city, died suddenly on Dec. 31, aged 60 years. At the time of his death he was president of the Flint Motor Axle Co., president of the Imperial Drop Forge Co., Indianapolis, and a director in the recently organized Flint Malleable Castings Co.

MANNING R. KELLEY, for the past 15 years field engineer for the Wellman-Seaver-Morgan Co., died on Jan. 2, aged 66 years. He had specialized on the erection of hydroelectric power plants and had charge of building some of the largest water power installations in the country.

H. B. TAYLOR, JR., for the past 30 years identified with the foundry supply industry, died at his home in Chester, Pa., on Dec. 30, following an illness of a little more than a year. He was associated for many years with Pettinos Brothers and, following the dissolution of that partnership, associated himself with George F. Pettinos, Philadelphia, maker and importer of foundry supplies.

L. LESLIE HELMER, general manager of the Cumberland, Md., works, N. & G. Taylor Co., Philadelphia, manufacturer of tin plate, died of typhoid fever on Dec. 24, aged 47 years. Born at Terre Haute, Ind., he received his early education at the Terre Haute High School and was graduated at the Rose Polytechnic Institute in 1901. After a short employment with the Pittsburgh Testing Laboratories, he was engaged as chemist in the open-hearth department of the Taylor plant. In 1903 he was made superintendent of the black plate department and in 1916 was appointed general manager. He was elected to the board of directors of the Taylor company in 1917 and became assistant secretary-treasurer. He was a member of the American Iron and Steel Institute and was prominently identified with industrial and civic activities in Cumberland.

Jonathan R. Jones

JONATHAN READ JONES, for almost 40 years closely identified with the Alan Wood Iron & Steel Co., died at his home in Philadelphia, Jan. 2. He became secretary and treasurer of the Alan Wood company in 1886, continuing in that position until elected vice-president of the company, in 1911, from which position he resigned last September. For many years he was supervising head of the sales department.

J. R. JONES

Mr. Jones was born Dec. 24, 1846, at Conshohocken, Pa. He attended Polytechnic College of the State of Pennsylvania at Philadelphia, graduating in civil engineering in 1865. After graduation, he engaged in business as an engineer in the construction of bridges and buildings and was connected with J. H. Linville, engineer for the Pennsylvania Railroad and for the Pennsylvania Steel Co., during construction of its Steelton plant. He was also connected for a time with the Keystone Bridge Co. of Pittsburgh. In 1878 he engaged in private practice as an engineer on bridges and buildings, continuing until 1886, when he became identified with the Alan Wood Iron & Steel Co. He was a member of the Franklin Institute, Philadelphia, and the American Iron and Steel Institute.

Jonathan Jones was one of a group of men of large caliber and high character who have honored the iron and steel business in eastern Pennsylvania in a peculiarly unostentatious and thorough manner and given it a quality which, without these leaders, it never would have had and a reputation which younger men are now being called upon to maintain.

Plans of New Companies

The Detroit Die Casting Co., 442 Jefferson Avenue East, Detroit, plans to manufacture die castings of various metals, small stampings, dies, tools, jigs, etc., having purchased the department of the Detroit Forging Co., which was devoted to this line. Its factory at 274 Iron Street, a large modern building, is in full operation. The officers of the company are the same as those of Davis, Kraus & Miller Inc., 440 Jefferson Avenue, Detroit, manufacturer of automobile trimmings, of which C. H. Davis is president, Lovell R. Kraus, vice-president, and Hugh Miller, secretary. E. Martin Tallbert is general factory manager. All purchases for the Die Casting company will be made by Davis, Kraus & Miller, Inc.

The Horne & Ebling Corporation, 50 Church Street, New York, recently incorporated with capital stock of $20,000, will act as distributor in New York for products of the Railway Steel Specialties Corporation, Acme Steel & Malleable Iron Works, Sellers Mfg. Co., and the Standard Supply & Equipment Co. L. W. Horne, J. N. Ebling and E. W. Van Houten are the principals.

The Weston Electric Instrument Corporation, Newark, N. J., has been organized to take over the business of the Weston Electric Co., 4 Weston Avenue, Newark, maker of electric measuring instruments. Arrangements have been made for an issue of $2,500,000 in stock, a portion of the issue to be used in its expansion schedule. Dr. Edward Weston is chairman of directors.

The Michigan Bearings Co., 219 Garfield Building, Detroit, has been organized with $35,000 capital stock, to act as distributor of replacement automotive parts. H. Schuman is one of the principals.

A company has been organized with headquarters at 217 St. Paul Street, Baltimore, to take over the manufacturing business of the Beardmore Machine Co., Baltimore, manufacturer of automobile timers. The new company will operate an assembling plant, parts to be made by contract. Roy V. Tyding is secretary.

The Freyer-Carroll Corporation, 427-33 East Avenue, Perth Amboy, N. J., has been organized to build commercial bodies and cabs and to do general blacksmithing work. It has a fully equipped shop and buys quantities of iron and steel from time to time. John A. Carroll is secretary.

Following the liquidation of the Benjamin Iron & Steel Co., Gustave Benjamin has incorporated the Essex Iron & Steel Co., 510 Peoples Bank Building, Buffalo, to deal in scrap iron, relaying rails, railroad equipment and industrial plants. Mr. Benjamin is president.

The recently organized General Die Casting Co., Stock Exchange Building, Philadelphia, is constructing a plant at Reading, Pa. T. Thomas is president.

The Duplex Condenser & Radio Corporation, care of Lansburgh Brothers, 30 Broad Street, New York, has been organized with 31,250 shares of common stock, to acquire from the Duplex Engine Governor Co., Inc., its plant, inventory and radio condenser business. The latter was organized in 1912 and has manufactured radio products since. Its plant is in the Sperry Building, 36 Flatbush Avenue Extension, Brooklyn. Present capacity is 2500 condensers per day, but this will be doubled by the installation of additional machinery. Leo Potter is president.

The Federated Engineers Development Corporation, 115 Broadway, New York, has organized the Hydro Refrigerator Co. for the purpose of manufacturing refrigerating machines. Bids have been received and contract for the first 10,000 machines will be placed shortly. The company will be in the market for a few accessories, John Hoffhine having charge of these purchases. O. M. Curtis, jr., is sales manager of the Hydro company.

The Erie Stove & Mfg. Co., Erie, Pa., has organized a California company with $50,000 capital stock, which will manufacture gas ranges for Pacific Coast consumption. The California company will be located at twenty-fifth and Alameda Streets, Los Angeles, Cal. Most of the machinery has been ordered. J. E. Nason is manager.

The Never Slip Door-Holder Co., 13161 Auburn Avenue, Detroit, has been organized with capital stock of $50,000 to manufacture garage door holders and other hardware products. A site was purchased and a building 40 x 40 ft. was erected to be used for office and assembling. Contracts for stampings and dies were placed with the Saginaw Stamping & Tool Co., Saginaw, Mich., and with the American Bolt Corporation, Detroit, for rods. Production will begin about Feb. 1. Dedrick F. Stearns is president.

The I. & S. Automatic Machine Products Co., 182 Grand Street, New York, recently was incorporated to do screw machine work of all kinds.

The Cook Spring Co., Ann Arbor, Mich., was recently organized to acquire the property and assets of the Cook Spring Co., a New York corporation, and will continue the manufacture of springs. A. J. Donally is president; William A. Schaley, vice-president, and M. E. Donally, secretary-treasurer.

The Watson Brothers Steel Co., 40 Hubbard Road, Youngstown, Ohio, recently was incorporated to continue the business which has been operating for ten years in jobbing of sheet steel and its products. Warehouses are located at Youngstown and Detroit, handling principally flat sheet steel. R. F. Thompson is one of the principals.

The Dixie Metal Products Sales Co., Inc., with main office and factory at Birmingham, Ala., was incorporated for $50,000, $25,100 being paid in, to manufacture and sell to jobbers the following products: radiator cabinets and shields, hot air register cabinets, roof flashings, door handles, etc. D. A. Thomas is president; D. D. Bentley, vice-president, and J. M. Chapman, secretary.

The Burnham Boiler Corporation of California, 1385 Harrison Street, San Francisco, has been organized to act as Pacific Coast distributor for the Burnham Boiler Corporation of New York.

The Rainbow Appliance Corporation, with factory and general offices at 11-27 Hand Street, Rochester, N. Y., has been organized to manufacture ironing machines. Manufacturing for some time will be done by another company, of which the Rainbow corporation is a subsidiary. A moderate expansion of production facilities may be considered. W. R. Moyes is general manager.

The Puritan Engineering Corporation, Fort Wayne, Ind., has been organized with capital of $10,000 to manufacture water softeners. Factory and executive offices are located at Wabash Avenue, Crawfordsville, Ind. Edward O'Rourke is director.

The Maxon Premix Burner Co., Muncie, Ind., has consolidated with the Maxon Furnace & Engineering Co., the merged company to operate as the Maxon Premix Burner Co. Branch offices are to be maintained in Chicago and Pittsburgh, and an Eastern office will be established later. L. P. Smith is one of the principals.

The L. & B. Sheet Metal Works, 72 Elm Street, Providence, R. I., has been organized to manufacture sheet metal products of various kinds. Operations have been started. John Baronian and Arthur J. Labelle are the principals.

The Ralph Metals Corporation, 4601 Woolworth Building, New York, organized with capital stock of $50,000, half of which has been paid in, will deal in all kinds of new and scrap metals, and plans to manufacture metal products. Ralph Herschcopf is president.

The Mitchell-Allen Machinery Co., Inc., 625 Main Avenue, Passaic, N. J., has been organized to manufacture machines for street marking purposes. The company hopes to begin production at an early date. William F. Mitchell is president and general manager, and Frank R. Allen is treasurer.

The Hickory Ball Bearing Works, Hickory, N. C., has been organized to operate a business in reconstructing single row, annular ball bearings, to be furnished to the automotive and industrial fields. It has secured buildings and later will be in the market for some machinery. F. W. McComb is one of the principals.

Anti-Stall, Inc., Mount Vernon, N. Y., has been organized to manufacture devices to prevent the stalling of motors. Manufacturing will be done by contract.

The White Iron Castings Corporation, 159 Miller Street, St. Louis, has been organized as a subsidiary of the Western Foundry & Sash Weight Co. for the purpose of producing and dealing in white hard iron heat-resisting castings of all kinds. It will occupy quarters adjacent to the south plant of the Western foundry company. Equipment for present needs has been installed. The company's foundry is located at 7500 South Broadway, St. Louis. Arthur H. Feuerbacher is president and treasurer; F. W. Feuerbacher, vice-president; Joseph P. Doerr, secretary.

The Viking Automatic Sprinkler Co., 740 Plymouth Building, Minneapolis, organized with $25,000 capital stock, will operate in the installation and maintenance of sprinkler systems made by the Viking Corporation, Hastings, Mich. Henry S. Vallila is president and treasurer.

The Sun Tube Corporation, Newark, N. J., has been incorporated with capital stock of $100,000 to manufacture tin tubes. It has erected a plant and is ready for operation. F. J. Lynch, Long Avenue, Hillside, Newark, is president.

The Merchants Grocer & Hardware Co., Harrisonburg, Va., capitalized at $250,000, fully paid in, conducts a business as indicated, maintaining a warehouse at Broadway, Va. J. W. Bolen is president and general manager.

The Empire Spring Co., organized with $25,000 capital stock, has leased space in the Jones Tea Co. Building, 59 Pearl Street, Brooklyn, and will manufacture springs. Operations will begin about Feb. 1.

New Scrap Specifications

(*Continued from page* 137)

Axle Turnings.—Heavy, short first cut turnings from wrought iron and steel railroad car axles or heavy forgings, and rail chips, to weigh not less than 75 lb. per cu. ft., free from alloys, dirt or other foreign material of any kind.

No. 1 Machine Shop Turnings.—New, clean steel or wrought iron turnings, free from lumps, badly tangled or matted material, cast iron borings, other metals, excessive oil, dirt or foreign material of any kind. Badly rusted or corroded stock will not be accepted.

No. 2 Machine Shop Turnings.—New, clean steel or wrought iron turnings, curly bushy stock, may contain tangled material, but must be free from badly rusted, lumpy and corroded stock. To contain no cast iron borings, other metals, excessive oil, dirt or foreign material of any kind. American Railway Association specifications Nos. 50 and 51 will be accepted.

Cast Iron Borings.—New, clean cast iron borings and drillings, free from steel turnings and from badly corroded or rusty material, lumps, oil, scale, other metals, dirt or foreign material of any kind.

Hydraulically Compressed Sheets.—New, black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, hydraulically compressed into compact rectangular packages not to exceed 20 in. longest dimension, weighing not less than 75 lb. per cu. ft.; must be clean and free from rust, paint or protective coating of any kind. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted.

Baled Sheet.—New black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, machine baled into rectangular packages, tied with wire or bands, or sufficiently compact not to come apart in handling with a magnet, not over 20 in. longest dimension, weighing not less than 45 lb. per cu. ft.; must be clean and free from rust, paint or protective coating of any kind. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted.

Hand Bundled Sheet.—New, black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, securely tied with not less than two wires or bands into packages not over 18 in. x 18 in. x 3 ft., weighing not over 125 lb., to be bundled in such a manner that packages will not come apart in handling with a magnet; must be clean and free from rust, paint or protective coating of any kind. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted.

Loose Sheet Clippings.—New, black steel sheet clippings, shearings and stampings, 3/16 in. and lighter, free from rust, paint or protective coating of any kind; to be not over 18 in. wide or long or if edge trimmings or shearings to be not over 12 in. by 5 ft. long. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted.

Galvanized or Coated Sheet.—New, clean steel sheet scrap, composed in whole or in part of material having a coating of zinc, paint or protective material. Must be clearly specified as galvanized or coated scrap and be classified as above, according to the manner in which it is bundled.

Detinned Sheet Scrap.—Sheet steel clippings and shearings, originally covered with a protective coating of tin or lead and tin, but from which such foreign metals have been removed by a standardized process. Must be clean, contain no material over 0.50 per cent silicon and be free from rusty and corroded stock. Must be clearly specified as detinned scrap and classified as above, according to the manner in which it is bundled.

Electrical Sheet.—New, clean steel sheet scrap, composed in whole or in part of material from 0.50 per cent to 1 per cent silicon. Must be clearly specified as electrical sheet scrap and be classified as above, according to the manner in which it is bundled.

High Silicon Sheet.—New, clean steel sheet scrap, composed in whole or in part of material over 1 per cent silicon. Must be clearly specified as high silicon sheet scrap and be classified as above, according to the manner in which it is bundled.

No. 1 Cast Iron.—To contain all kinds of machinery and similar railroad cast iron scrap, nothing under 3 lb. or over 150 lb. in weight or over 24 in. long. To contain no brake shoes, cast iron soil or water pipe, stove scrap or burned iron of any description, and be free from steel parts.

No. 2 Cast Iron.—To contain all kinds of agricultural implements of cast iron, free from steel parts, nothing under 3 lb. or over 150 lb. in weight or over 24 in. long. To contain no stove scrap or burned iron of any description.

No. 3 Cast Iron.—To consist of cast iron scrap with steel parts attached, nothing under 3 lb. or over 150 lb. in weight, or over 24 in. long.

Heavy Breakable Cast.—Heavy cast iron machinery suitable for breaking under and with the buyer's drop. Pieces not to exceed 10 tons in weight. Free from anvil blocks, hammer bases and like material, and containing no burnt iron or brake shoes.

Low-Phosphorus and Low-Sulphur Steel Scrap for Acid Open-Hearth Furnaces

Billet and Bar Crops.—Ingots, billet, bloom, axle or bar crops, not over 0.04 per cent phosphorus and sulphur, not over 1 per cent silicon, free from alloys. Not less than 2 in. square or diameter, not over 18 in. wide and sheared to lengths not over 36 in., and no piece to weigh less than 10 lb. or more than 350 lb. Must be new material and free from excessive rust.

Plate Crops.—Plate crops, or sheet bar crops, not over 0.04 per cent phosphorus and sulphur, not over 1 per cent silicon, free from alloys. Not less than ¼ in. thick, not over 18 in. wide and sheared to lengths not over 36 in., and no piece to weigh less than 10 lb. or more than 350 lb. To be free from needle and sliver stock. Must be new material and free from excessive rust.

Structural and Miscellaneous.—Bar ends, forging crops, structural crops, couplers, knuckles, gates, heads, risers and plate shearings smaller and lighter than grade A and B, not over 0.04 per cent phosphorus and sulphur, not over 1 per cent silicon, free from alloys. Not less than ¼ in. thick, not over 18 in. wide or 36 in. long and no piece to weigh less than 5 lb. To be fully described at time of sale and purchase. Must be new material and free from excessive rust.

Tube Scrap.—Tube scrap, seamless or welded, not over 0.04 per cent phosphorus and sulphur, free from alloys. Not less than No. 12 gage thickness of wall; if over 4 in. inside diameter they must be mashed flat, and sheared to lengths not over 36 in. Must be only new material that has not been in use for any purpose and free from excessive rust.

Punchings.—Punchings from plate and structural steel scrap, not less than ¼ in. thick and not less than ½ in. diameter, not over 0.04 per cent phosphorus and sulphur, not over 1 per cent silicon, free from alloys. Must be free from dirt and excessive rust or corrosion.

Car Wheels.—Solid cast steel, forged, pressed or rolled steel car and locomotive wheels, not over 36 in. diameter. Must be free from excessive rust, dirt or grease.

Spring Steel.—Coil and elliptic steel springs, made of material not less than ½ in. diameter or ¼ in. thickness, not over 18 in. wide and sheared to lengths not over 36 in. May be assembled or cut apart. Must be free from excessive rust, dirt or grease.

Knuckles and Couplers.—Railroad car and locomotive steel couplers and knuckles stripped clean of all other attachments. Must be free from excessive rust, dirt or grease.

Scrap Tires.—Steel tires from car and locomotive wheels, cut to not over 24 in. long. Must be free from excessive rust, dirt or grease.

Car Bolsters.—Railroad car steel bolsters and side frames, stripped clean of all iron attachments. Not over 18 in. wide and sheared to lengths not over 36 in. Must be free from excessive rust, dirt or grease.

High Silicon.—High silicon billet, bloom, bar crops, plate crops or sheet bar crops, not over 0.04 per cent phosphorus and sulphur, not less than 2 per cent or over 4.50 per cent silicon, free from alloys, not less than ¼ in. thick, not over 18 in. wide and 36 in. long, and no piece to weigh less than 10 lb. or more than 350 lb. To be free from needle and sliver stock. Must be new material and free from excessive rust.

High Nickel.—Nickel steel billet, bloom, bar crops, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus and sulphur, between 3 per cent and 3.50 per cent nickel (lower or higher in nickel content to be duly considered), free from other alloy. Not less than 2 in. square or diameter, not over 18 in. wide and sheared to lengths suitable for charging boxes

of buyers, and no piece to weigh less than 25 lb. Must be clean material.

No. 1 Chrome Nickel.—Chrome nickel steel billet, bloom, bar crop, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus and sulphur, between 3 per cent and 3.50 per cent nickel (lower or higher nickel content to be duly considered), not over 0.50 per cent chrome, free from other alloys. Not less than 2 in. square or diameter, not over 18 in. wide and sheared to lengths suitable for buyers' charging boxes and no piece to weigh less than 25 lb. Must be clean material.

No. 2 Chrome Nickel.—Chrome nickel steel billet, bloom, bar crops, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus and sulphur, between 1.50 per cent and 2.50 per cent nickel (lower or higher nickel content to be duly considered), between 0.50 per cent and 1 per cent chrome, free from other alloys. Not less than 2 in. square or diameter, not over 18 in. wide and sheared to lengths suitable for buyers' charging boxes and no piece to weigh less than 25 lb. Must be clean material.

Light Chrome Nickel.—Nickel or chrome nickel steel of the analysis and descriptions as shown except it may be lighter and of miscellaneous shapes. To be fully described at time of sale and purchase.

Special Chrome Nickel.—Nickel or chrome nickel steel of the analysis and descriptions as shown except the phosphorus and sulphur may go up to, but not over, 0.05 per cent. To be fully described at time of sale and purchase.

Nickel Steel Turnings.—Heavy short first cut turnings from nickel steel forgings. Nickel and chrome content to be specified on each individual sale. To weigh not less than 75 lb. per cu. ft. To be free from dirt and other foreign materials.

Scrap for Use in Electric Furnaces

Punchings and Clippings.—Open-hearth steel punchings and clippings, ¼ in. and heavier, 4 in. and under in length. Must be 0.04 per cent and under in phosphorus and sulphur, and be suitable for shovel charging. Must be clean and free from galvanized or coated stock, dirt and excessive rust or corrosion.

Guaranteed Structural.—Open-hearth steel plates, structural shapes, crop ends, shearings, broken steel tires, knuckles, tool steel and spring steel. To be not less than ¼ in. thick and not over 12 in. in diameter. Must be suitable for hand charging. Must be 0.04 per cent and under in phosphorus and sulphur, clean, free from excessive rust and corrosion and contain no foreign material.

Unguaranteed Structural.—Steel plate, shearings, nut and bolt punchings, short rails and other similar material, less than ¼ in. thick, and not over 12 in. wide and long. Not guaranteed under 0.04 per cent phosphorus and sulphur. To be suitable for hand charging. Must be free from galvanized and coated stock, foreign material, and excessive rust or corrosion.

Guaranteed Axle Turnings.—Heavy steel or iron axle or forge turnings, guaranteed 0.04 per cent and under in phosphorus and sulphur. To contain no foreign material and must be clean and free from excessive rust and corrosion.

Unguaranteed Turnings.—Short, heavy, shoveling steel or iron turnings or rail chips, not guaranteed 0.04 per cent and under in phosphorus and sulphur. To contain no foreign material and must be free from excessive rust or corrosion.

Scrap for Use in Gray Iron Foundries

No. 1 Machinery Cupola.—Clean machinery cast iron scrap. Must be cupola size, not over 30 in. in any dimension and no piece to weigh over 150 lb. Clean mine car wheels, free from dirt and grease will be accepted.

No. 1 Machinery Breakable.—Clean machinery cast iron scrap, weighing over 150 lb. and which can be easily broken by an ordinary drop into cupola size.

No. 1 Common Cupola.—Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, but free from stove plate and agricultural scrap. Must be cupola size, not over 30 in. in any dimension, and no piece to weigh over 150 lb. Must be reasonably free from foreign material.

No. 1 Common Breakable.—Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, weighing over 150 lb. and which can be easily broken by an ordinary drop into cupola size.

Burnt Cast.—Burnt cast iron scrap, such as grate bars, annealing boxes, stove parts, and any miscellaneous burnt scrap. A. R. A. classification No. 18 will be acceptable.

Stove Plate.—Clean cast iron stove plate. Must be free from malleable and steel parts, window weights, plow points, grates, burnt iron, etc.

Agricultural.—Cast iron parts of agricultural machinery, including plow points. Must be free from steel, malleable and full chilled iron.

Cast Iron Car Wheels.—Clean, chilled cast iron car wheels, conforming to M. C. B. specifications. A. R. A. classification No. 54 will be acceptable.

Brake Shoes.—Driving and car brake shoes of all types, except composition filled shoes. A. R. A. classification No. 19 will be acceptable.

No. 1 Radiator.—Broken radiator castings, with all steel, malleable and other parts removed. Must be free from excessive scale, rust and corrosion.

No. 2 Radiator.—Unbroken radiator castings, with all steel, malleable, and other parts removed. Must be free from excessive scale, rust and corrosion.

No. 1 Malleable, Air Furnace Practice.—Malleable parts of automobiles, railroad cars and miscellaneous malleable castings, weighing 10 lb. and over. Must have undergone the annealing process. Must be free from steel, gray and cast iron parts. A. R. A. classification No. 30 will be acceptable.

No. 2 Malleable, Air Furnace Practice.—Malleable parts of agricultural implements, and other miscellaneous malleable castings, under 10 lb. in weight. Must have undergone the annealing process. Must be free from steel and cast iron parts.

Cupola Malleable.—Malleable parts of agricultural implements, automobiles, railroad cars and similar miscellaneous malleable castings, suitable for cupola charging. Must have undergone the annealing process. Must be free from steel and cast iron parts.

Scrap for Use in Bessemer Converters

Mild Steel Converter Scrap.—Mild open-hearth steel scrap, such as structural shapes, rolling mill crop ends, forgings and forge crop ends. No piece to weigh over 150 lb. or less than 10 lb., not under ⅜ section, and must not exceed 24 in any one dimension. Must be free from excessive rust or corrosion.

High-Carbon Steel Converter Scrap.—High-carbon or hard steel scrap, such as steel rails and material of similar analysis. No piece to weigh over 150 lb. or less than 10 lb. and must not exceed 24 in. in any one dimension. Must be free from excessive rust or corrosion.

Steel Spring.—Coil and leaf springs, made from stock ⅜ in. in thickness or heavier. Elliptical springs must be cut apart, and must not exceed 24 in. in length. Must be free from plates, and from excessive rust or corrosion.

Miscellaneous

Crucible Steel Scrap.—Boiler and structural steel punchings, under 0.04 per cent in phosphorus and sulphur. This is a basic classification for crucible steel scrap. In the event any other material is specified, no piece shall exceed 5 in. in width or 8 in. in length. In the event that small soft steel castings are specified as crucible scrap, the weight shall not exceed 10 lb. per piece. Must be free from tinned and galvanized stock, malleable and cast iron and all foreign metals. Must be clean, and free from dirt, and excessive rust or corrosion.

Re-Rolling Rails.—Standard section steel tee rails, 50 lb. per yard and heavier, five feet long and over. Suitable for re-rolling. Free from badly bent and twisted rails, frog, switch and guard rails and rails with split heads and broken flanges.

Chemical Borings.—Clean, coarse, dry cast iron borings free from oil and grease. Shall contain no lumpy or rusty stock, and be free from other metals.

Machinery Markets and News of the Works

ACTIVE YEAR EXPECTED

Diverse Source of Orders Indicates That Revival Is Widespread

Westinghouse Issues Quarterly List—Buying for Russian Government Continues

THE machine-tool market is active. Inquiry continues good and the miscellaneous character of it is taken as an encouraging feature. Orders are also from diverse sources, which indicates perhaps that revival of business is widespread. In many districts sales during December more than equalled the best of any previous month last year. It seems generally believed that the coming year will be an active one.

Demand from the automotive industry has been light. Increased production of closed cars is looked upon as likely to bring increased demands on the body builders, with extensions of plant and equipment.

The Nash Motors Co. purchased lathes during the week, and is inquiring for nine steam hammers for an addition to its forge shop at Kenosha, Wis.

New inquiries include the quarterly list of the Westinghouse Electric & Mfg. Co., and one of the Patterson Foundry Co., East Liverpool, Ohio.

The National Tube Co. is inquiring for a few tools and a forging machine is one of three tools wanted by the International Harvester Co., Chicago.

Several items are still pending on the list of the Worthington Pump & Machinery Corporation for its Buffalo plant. Part of the list has been placed recently.

Eleven machines were taken by the Holt Mfg. Co., Peoria, Ill., and milling machines, automatic lathes and several grinders were purchased by the Yellow Sleeve Valve Mfg. Co., Moline, Ill. Equipment was bought by a Connecticut shipbuilding company, and several lathes by a New England paper interest.

The General Electric Co. has completed the purchase of equipment for its Cincinnati service station. The New York Central Railroad took several lathes during the week.

Machine tools and other equipment for the Russian Government are being purchased by the Amtorg Trading Co., 136 Liberty Street, New York. Seven turret lathes for a Japanese interest were placed in Cleveland.

New York

NEW YORK, Jan. 6.

ACTIVITY in the machine-tool field shows a gradual increase and inquiry is beginning to spread from the railroads to the larger industrial users. The General Electric Co., Schenectady, N. Y., closed recently on several tools including a large milling machine. The Worthington Pump & Machinery Corporation has closed on part of its inquiry for machines to be used in its Buffalo plant, including in its purchase a large boring mill and boring machine. Several large tools are still pending. The New York Central Railroad has purchased part of a list of tools issued several weeks ago, recent awards including a 27-in. lathe and a 66-in. horizontal boring and drilling machine from an Eastern builder and a No. 3 universal turret lathe from a Cincinnati builder. The Essex County Board of Education, which recently inquired for a list of small tools covering about 28 items, for a vocational school at Irvington, N. J., omitted purchasing several of the tools because of insufficient appropriation. Additional buying is expected soon from the 1925 appropriation. The Amtorg Trading Co., 136 Liberty Street, New York, an official purchasing agency of the Russian Government, continues active in the purchase of a wide range of equipment, including machine tools.

Among other recent purchasers of machine tools are the Pullman Car & Mfg. Corporation, two 1500-lb. steam hammers; the Electric Bolt Co., Boston, 30-in. x 20-ft. lathe and a 5-ft. radial drill; the Mount Vernon Car & Mfg. Co., three 48-in. carwheel borers; the McClintic-Marshall Co., a 42-in. rotary planer; the American Steel & Wire Co., Worcester, Mass., a 5-ft. and a 6-ft. radial drill; the Hanna Stoker Co., Cincinnati, a 50-ton bushing press.

The Andes Copper Mining Co., 25 Broadway, New York, operated by the Anaconda Copper Mining Co., same address, has plans for extensions and improvements in its properties in the Province of Atacama, Chile, and will use the proceeds of a $40,000,000 bond issue, recently sold, for such purposes. The work will include a complete metallurgical plant, mill for handling oxide ores, railroad equipment, handling and conveying machinery and power equipment. Cornelius F. Kelley is president.

The Chief Engineer's Branch, New South Wales Government Railways and Tramways, Sydney, Australia, is asking bids until Jan. 28 for boiler feed pumps, both electric and steam-driven, for the White Bay power plant.

The Board of Education, 500 Park Avenue, New York, is having plans prepared for a four-story vocational school, 89 x 190 ft., at Wales Avenue and 147th Street, to be known as the Bronx Vocational School, estimated to cost $650,000 with equipment. William H. Gompert, Flatbush Avenue Extension and Concord Street, Brooklyn, is architect.

Officials of the William W. Beers Co., 15 Park Row, New York, manufacturer of standardized steel buildings, have organized Beers-Tapman, Inc., to succeed to and enlarge the present business. Officers of the new company are William W. Beers, S. F. Tapman and P. A. Bougerie.

The State Legislature, Ceara, Brazil, has authorized the municipal chamber of Acarahu to enter into an agreement with any company or individual to install an electric lighting plant for local service. Correspondence should be addressed to Illmo. Snr. Perfeito, Acarahu, Ceara, Brazil.

The North American Co., 60 Broadway, New York, operating electric light and power utilities, has arranged a fund of $41,500,000 for extensions and improvements during 1925. The work will include a new 400,000-hp. generating plant at Avon, Ohio, near Cleveland, and other expansion in this district to cost in all $20,000,000, under the control of the Cleveland Electric Illuminating Co., a subsidiary; extensions in power plants and system in the Illinois-Missouri district, to cost $11,000,000; and for similar power station construction in Wisconsin and Michigan, to cost $10,000,000. Coal and electric properties in Kentucky will also be extended and additional equipment installed at a cost of about $500,000. F. L. Dame is president.

The New York Brass Turning Co., 231 Bowery, New York, has leased property at 568-74 Broadway for a new works and headquarters.

The Pan-American Petroleum & Transport Co., 120 Broadway, New York, has disposed of a common stock issue of $5,000,000, a portion of the proceeds to be used for extensions and improvements.

The Crane Market

FEW new inquiries for electric overhead or locomotive cranes have appeared since the first of the year, but inquiries that have been pending for several weeks are more active and a few awards are reported. The General Electric Co., Schenectady, N. Y., in the market for nine small cranes for West Philadelphia, Pa., three for Detroit and four for Cincinnati, has closed for the West Philadelphia and Detroit cranes, but is still in the market for the two 3-ton, one 5-ton and one 10-ton overhead crane, 18-ft. to 19-ft. spans for Cincinnati. The large overhead cranes for which the Phoenix Utility Co. and the New York Edison Co., New York, have been in the market are expected to close soon. The New York Central Railroad is about to close on a 10-ton gantry crane for its Melrose yards.

Crane business in the Pittsburgh district is quite active with recent local awards totaling 13 cranes. Pending business is heavy and a number of awards are expected in the next few weeks. In the Cleveland district inquiries are pending for four bridge cranes, two for handling ore and two for coal.

Among recent purchases are:

Delaware, Lackawanna & Western Railroad, New York, five 25-ton locomotive cranes from the Ohio Locomotive Crane Co.

New York Central & Hudson River Railroad, two 150-ton wrecking cranes from the Industrial Works.

Ozan-Graysonia Lumber Co., Graysonia, Ark., a log unloading crane from the American Hoist & Derrick Co.

Wickwire Spencer Steel Corporation, New York, a 7½-ton, 26-ft. span electric traveling crane for Spencer, Mass., from the Northern Engineering Works.

City of Lakeland, Fla., a 25-ton, 45-ft. span, 3-motor overhead crane from an eastern Pennsylvania builder.

Wisconsin Steel Works, Chicago, a 150-ton stripper crane and a 5-ton soaking pit crane from the Alliance Machine Co.

General Electric Co., Schenectady, N. Y., a 5-ton, 55-ft. span overhead crane for West Philadelphia from the Whiting Corporation.

Bethlehem Steel Co., Bethlehem, Pa., a 40-ton, 21-ft. span and two 10-ton, 42-ft. 6-in. and 55-ft. 10-in. spans for the Lackawanna works from an Ohio builder.

General Electric Co., Schenectady, N. Y., three 3-ton and six 5-ton overhead cranes for West Philadelphia and a 10-ton, 5-ton and 3-ton crane for Detroit from a mid-western builder.

Bradford Brick & Tile Co., Bradford, Pa., four 5-ton, 50-ft. span cranes from Manning, Maxwell & Moore, Inc., Shaw Crane Works.

Gary Tube Co., Gary, Ind., one 25-ton, 60-ft. span overhead crane with 5-ton auxiliary and one 15-ton, 52-ft. 6-in. span crane from Manning, Maxwell & Moore, Inc., Shaw Crane Works.

Pittsburgh Transformer Co., Pittsburgh, two 5-ton and one 2-ton cranes from the Northern Engineering Works and a 50-ton crane with 10-ton auxiliary and a 15-ton crane from the Cleveland Crane & Engineering Co.

A Pittsburgh steel fabricator, two 10-ton, 80-ft. span cranes for its Pacific Coast plant, from Manning, Maxwell & Moore, Inc., Shaw Crane Works.

Louisville Bridge & Iron Co., Louisville, Ky., a 20-ton, 4-motor, 50-ft. span; a 15-ton, 70-ft. span, 3-motor, and a 10-ton, 70-ft. span, 3-motor overhead cranes from the Cleveland Crane & Engineering Co.

Industrial Steel Castings Co., Toledo, Ohio, a 15-ton, 4-motor, 51-ft. span electric traveling crane from the Cleveland Crane & Engineering Co.

A company has been organized at Rio Grande, State of Rio Grande do Sul, Brazil, with capital of about $1,150,000, to construct and operate a local cement mill. About one-half of the fund to be used for plant erection and machinery will be secured by loans from the Government and the remainder by public subscription. M. A. Cremer, assistant trade commissioner, Bureau of Foreign and Domestic Commerce, Rio de Janeiro, Brazil, has information regarding the project.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, France, has received an inquiry (D. 2945) from a company at Marseilles, France, in the market for American machinery for the manufacture of oils and soap.

Goldberg & Barkan, 62 Hope Street, Brooklyn, manufacturers of window frames, sash, etc., have plans for a two-story factory, 35 x 85 ft., to cost approximately $50,000 with equipment. Murray Klein, 37-39 Graham Avenue, is architect.

The Servadish Co., Inc., 165 Broadway, New York, manufacturer of fiber dishes and products, has plans for a two-story factory, 60 x 200 ft., with L-extension 40 x 40 ft., at Morristown, N. J. Property has been purchased for future expansion.

The Acme Handle Co., 228 Orient Avenue, Jersey City, N. J., has plans for a two-story addition, 90 x 100 ft., to cost approximately $30,000. John Armstrong, 36 Gautier Street, is architect.

The Auto Strop Safety Razor Co., 656 First Avenue, New York, has awarded a general contract to Thompson & Binger, Inc., 103 Park Avenue, for its three-story and basement plant on site lately acquired at 960-990 Frelinghuysen Avenue, Newark, N. J., reported to cost in excess of $75,000. The present Newark factory of the company on Lock Street will be abandoned upon completion of the new structure.

The Artistic Metal Products Co., New Jersey Railroad Avenue and Lafayette Street, Newark, has leased a portion of the building at 145 Jackson Street to replace its local works recently destroyed by fire.

The Sandow Tool Co., Rochelle Park, N. J., has awarded a general contract to the Kannie Construction Co., 71 Mount Vernon Avenue, for a one-story machine shop addition, estimated to cost $30,000. Gretsch & Creamer, Bible House, New York, are architects.

The Monmouth Lighting Co., Keyport, N. J., will issue bonds for $130,000, a portion of the proceeds to be used for extensions and improvements.

The White Metal Mfg. Co., Hoboken, N. J., states that an item announcing that it intended to build a plant in Toronto is entirely without foundation.

Philadelphia

PHILADELPHIA, Jan. 5.

A CONSTRUCTION and improvement budget for 1925, totaling about $24,000,000, is being arranged by the Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia. The work will include the construction of two units at the proposed Richmond generating plant, each with capacity of 50,000 kw., with automatic coal-handling equipment. Additional machinery will be installed in other generating stations and extensions made in lines.

The Walworth Mfg. Co., 81 Pearl Street, Boston, manufacturer of wrenches, etc., has plans for a six-story factory and distributing branch at Hunting Park Avenue, Philadelphia, to cost $100,000. Clarence E. Wunder, 1520 Locust Street, Philadelphia, is architect. Howard Coonley is president.

Henry Disston & Sons, Inc., Tacony, Philadelphia, has preliminary plans for a six-story addition at Wissinoming and Unruh Streets, Tacony, for which it is expected to ask bids at an early date. The William Steel & Sons Co., 219 North Broad Street, is engineer.

The Simplex Valve & Meter Co., 5722 Race Street, Philadelphia, has taken bids on revised plans for its proposed new factory on Upland Avenue. It will be one-story, 90 x 175 ft. Edgar A. Wightman, Bankers' Trust Building, is architect.

The O. J. Maigne Co., 202 South Hutchinson Street, Philadelphia, manufacturer of printers' rollers and kindred equipment, has acquired the two-story building at 921 Locust Street, 23 x 121 ft., for extensions.

The Pennsylvania Railroad Co., Philadelphia, is planning the construction of a new engine house, with repair facilities, at Altoona, Pa., where a tract of 90 acres recently was acquired. The present engine house will be demolished and a new locomotive repair shop constructed. The work is reported to cost more than $100,000, and will begin in the spring.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received the following inquiries: (43023) from Carlos Viso, Calle Colon 27, Caracas, Venezuela, desiring to get in contact with American manufacturers of stoves, hardware specialties, butchers' machinery, electrical supplies, etc.; (43031) from the Towa Trading Co., 316 Gotenyama Shinagawa, Tokio, Japan, desiring to get in touch with American manufacturers of molds for making printing types, machines for type foundry and other type foundry apparatus; (43049) from Hamilton & Co., Broadway, Madras, India.

desirous of getting in contact with American manufacturers of lanterns, locks, druggists' machinery, explosives, etc.

The National Electrical Mfg. Co., 40 North Seventh Street, Philadelphia, has leased a floor in the building at 17 South Fourth Street for extensions.

The C. H. Wheeler Mfg. Co., Eighteenth and Lehigh Streets, Philadelphia, manufacturer of condensers, vacuum pumps, etc., has awarded a general contract to C. F. Simmons' Sons, Inc., Philadelphia, for a one-story addition, to be used primarily for the production of cooling towers and other plate specialties.

Fitzgibbon & Crisp, Inc., Calhoun Street, Trenton, N. J., manufacturer of automobile bodies, has awarded a general contract to the James H. Morris Co., Trenton, for a one-story addition to cost about $20,000.

Edward W. Peters, 103 Lower Mulberry Street, Danville, Pa., has inquiries out for a gas engine, about 150 hp. capacity, direct-connected to a 100-kw. generator, with accessory equipment.

The Walls, Owen & Stambach Co., Eleventh and Ridge Streets, Philadelphia, plumbing equipment and supplies, has acquired 2¼ acres near Thirteenth Avenue, Bethlehem, Pa., fronting on the line of the Lehigh & New England Railroad, and plans the construction of a branch and distributing works, for which bids will be asked on general contract early in the spring.

The Pennsylvania Power & Light Corporation, Allentown, Pa., is completing plans for the early construction of the initial units for its proposed electric power plant at the Shamokin Dam, near Sunbury, Pa., with steel tower transmission line. It is estimated to cost in excess of $5,000,000 with machinery. The company is operated by the Electric Bond & Share Co., 71 Broadway, New York.

The Reading Scale & Machine Co., Front and Chestnut Streets, Reading, Pa., is said to be planning for the early rebuilding of the portion of its plant destroyed by fire Dec. 24 with loss estimated in excess of $75,000 with equipment.

The City Council, Harrisburg, Pa., is arranging an appropriation for the purchase of an air compressor for pipe line work in connection with a 1925 budget for municipal improvements. The Water Department will be in charge.

The Philadelphia & Reading Railway Co., Philadelphia, is arranging a fund of about $3,000,000 for extensions and betterments at Reading and vicinity during 1925, to include the erection of a new car shop, 335 x 880 ft.; forge, blacksmith and machine shop, 100 x 110 ft.; office building, 40 x 90 ft.; and new storehouse. A coal dock, with handling and conveying equipment, will also be constructed.

The Glen Alden Coal Co., Scranton, Pa., has plans for the construction of a power house at its plant at Nanticoke, Pa., reported to cost in excess of $75,000.

New England

BOSTON, Jan. 5.

A CONSIDERABLE amount of equipment taken by a Connecticut shipbuilding firm, details of which are not available, several lathes and other shop equipment purchased by a New England paper manufacturer and a few new and used tools here and there constitute the machine tool business made public since our last report. The slump in sales was anticipated by machine tool houses, however, because of inventories. Renewed buying, it is believed, may be expected after the middle of this month. Machine-tool dealers have a sizable number of inquiries in hand, and while the bulk concerns single machines, the aggregate is sufficiently large to inspire more optimism in the trade than has been evident in months. Virtually no year-end price adjustments were reported by Boston machinery dealers.

Machine and wood-working shops will be maintained in a three-story, 40 x 168 ft. elementary school to cost $400,000, without equipment, to be erected in West Roxbury by the city of Boston, bids for which are open. C. Howard Walker & Sons are the architects. Thomas P. Glynn is chairman of the school commission.

The Fuller Construction Co., 31 Milk Street, Boston, has the general contract for a one-story addition to the plant of the Thomson Electric Welding Co., 161 Pleasant Street, Lynn, Mass. H. M. Haven and A. T. Hopkins, 11 Beacon Street, Boston, are the architects.

Conveying and other machinery is required for a 75 x 105 ft. ice house to be erected by the Boston & Maine Railroad at Newport, Vt. Plans are private.

A permit to erect a one-story, 40 x 65 ft. machine shop has been granted Julius Michelson, 66 Wareham Street, Medford, Mass. Plans are private.

The Strand & Sweet Mfg. Co., Winsted, Conn., manufacturer of wire, is building an addition to its plant. The company has under consideration the erection of a large plant in England to care for its European business.

The plant of the Montville Tool Co., Fiskdale, Mass., recently was destroyed by fire. Reconstruction will start within a few weeks. Alfred H. Montville is owner.

The Mechanics' Iron Foundry Co., Inc., 38 Kemble Street, Roxbury, Boston, recently was destroyed by fire with loss estimated at $25,000. Plans are in progress for rebuilding.

The William H. Haskell Mfg. Co., Pawtucket, R. I., manufacturer of expansion bolts, etc., will erect a two-story addition, 50 x 57 ft., estimated to cost $32,000, for which a general contract has been let to Willmarth-Mackillop, Inc., Pawtucket.

The Lincoln Iron Works, Inc., Rutland, Vt., is said to be arranging plans for rebuilding the portion of its plant recently destroyed by fire. It will cost approximately $75,000.

The Nashua River Paper Co., Pepperell, Me., has work under way for an addition estimated to cost $100,000 with equipment. A general building contract recently was let to L. H. Shattuck, Inc., 208 Granite Street, Manchester, Conn.

The Lux Clock Mfg. Co., Sperry Street, Waterbury, Conn., has acquired property at Sperry and Johnson Streets, near its present plant, for an addition for which plans will be drawn later.

Present plans are that the Ford Motor Co. will construct open and closed bodies at a plant to be erected in Somerville, Mass., in 1925. A power plant equipped with turbo-generators will furnish electric energy; boilers will be equipped with oil burners; heat for the plant and for drying ovens will be supplied by exhaust steam from the turbines; tanks will be required for gasoline, oil and enamel; tanks will be piped to various points in the main plant; conveyor lines will operate in various parts of the plants; and the river is to be made navigable for large steamers.

The Superior Mfg. Co., Middletown, Conn., has been organized with $50,000 capital stock to manufacture clutch facing and brake linings. It will either build a plant or purchase. William R. Beers is vice-president and treasurer.

Pittsburgh

PITTSBURGH, Jan. 5.

THE local machine-tool market is active in both sales and inquiries. Last month was the best December in point of sales that the trade generally has had in the past four years. Business for that month was helped by the placing of a number of tools for the new Pacific Coast plant of a Pittsburgh steel fabricating interest. Inquiries are numerous and include the quarterly list of the Westinghouse Electric & Mfg. Co., and one of the Patterson Foundry Co., East Liverpool, Ohio. The National Tube Co. is inquiring for a few tools for one of its local plants. The expectation is for a good year in tools, based on the general business sentiment which is more confident than in several years. Steel companies will probably do considerable buying and replacement orders from car builders and other metal-working industries are expected to reach a good volume.

The power equipment market has shown marked activity. The American Sheet & Tin Plate Co., has placed a 1250-hp. 300 rpm. three-phase, 25-cycle, 6600 volt wound rotor inductive motor for its Wood works, McKeesport, Pa., to replace a steam drive. The American Steel & Wire Co. has placed a 44 and 84 x 86-in. twin tandem Corliss engine for the rod mill drive at its Donora works. The Bethlehem Steel Co. has ordered a 2000-kw. motor generator set, a duplicate of six sets of the same size now being built, for its Cambria works, Johnstown, Pa.

The Bradford Brick & Tile Co., Odd Fellows Building, Bradford, Pa., has preliminary plans for new works in the vicinity of Brockwayville, Pa., including power house and machine shop, to cost more than $1,000,000, with equipment. W. Hanley, Jr., is president.

The Board of Education, West View, Pa., plans the installation of manual training equipment in the proposed two-story junior high school to be erected at Perrysville and Chalfont Avenues, estimated to cost $150,000, for which bids have been asked on a general contract. G. H. Schwan, Peoples' Bank Building, Pittsburgh, is architect.

The Island Creek Coal Co., Huntington, W. Va., is having plans drawn for a new steel tipple to replace an existing structure now obsolete. A belt conveyor system will be installed.

The Parkersburg Clay Products Co., Parkersburg, W. Va., recently formed with a capital of $200,000, has acquired a site on the Staunton Pike for a new plant to manufacture hollow tile and kindred products, estimated to cost $80,000. G. L. Dudley, Sr. and Jr., both of Parkersburg, head the company.

The Board of Education, Charleston, W. Va., plans the installation of a vocational department in the local high school, to be erected on the site of the former Mercer school, estimated to cost $700,000.

The Bonita Art Glass Co., Wheeling, W. Va., has abandoned plans for the rebuilding of its former works, destroyed by fire several weeks ago, with loss of $50,000 including machinery, and will soon begin the construction of a new plant at Fifteenth Street and Adams Avenue, Huntington, W. Va.

The Pennsylvania Lubricating Co., Thirty-fourth Street and the Alleghany Valley Railway, Pittsburgh, will begin the erection of a three-story oil service and distributing plant at Thirty-third and Spruce Streets, 72 x 121 ft., to cost $55,000. John Breslove, Oliver Building, is engineer. John Wassen is general manager.

N. P. Howard, Box 448, Lexington, Ky., and associates, have acquired natural gas acreage near Akeley, Warren County, Pa., upon which it is planned to start development work at once. Machinery requirements will include air compressors, extractors and other equipment as well as machine shop equipment. A four-mile pipe line will also be constructed. The work is estimated to cost $75,000.

E. L. Jones, president, Quaker Hill Oil & Gas Co., 2519 Peach Street, Erie, Pa., is in the market for equipment for a four-mile pipe line, together with air compressors and booster station machinery and equipment.

Fire, Dec. 30, destroyed the planing mill and woodworking plant of Frederick Brothers, Pottstown, Pa., with a reported loss of $65,000. Plans for rebuilding on a larger scale are under advisement. Requirements will include electrically operated machinery.

Chicago

CHICAGO, Jan. 5.

DECEMBER sales of local machine-tool houses lend weight to the belief that the coming year will be one of active business. For a number of dealers December was the best month of 1924 and one house reports that it showed the largest bookings since 1920. The most encouraging feature of the situation is the miscellaneous character of current demand. Orders are coming from a great variety of users, indicating that industrial revival is widespread.

The Holt Mfg. Co., Peoria, Ill., has closed for one 5-ft. and two 4-ft. heavy Carlton radial drills, two Bullard mult-au-matics, one planer-type milling machine, three No. 4 milling machines, a 48-in. planer, and a turret lathe. The Miehle Printing Press Co., Chicago, which has recently been a heavy buyer, has also closed for a special Bilton cam-operated milling machine. The Yellow Sleeve Valve Mfg. Co., Moline, Ill., has closed for two cam-shaft grinding machines, four automatic lathes, a number of cylindrical grinding machines and three milling machines, of which one was a rebuilt tool. The American Steel & Wire Co. has purchased a turret lathe for Joliet, Ill., and one radial drill each for Waukegan and DeKalb. It is also inquiring for a 28-in. shaper for DeKalb. The Universal Portland Cement Co. is in the market for a 30-in. open-side planer for Buffington, Ind., and recently purchased two 22-in. engine lathes for that plant. The Dubuque, Iowa, Board of Education has placed orders for a 24 x 24-in. x 8-ft. planer and a No. 2 universal milling machine. The Maytag Co., Newton, Iowa, has closed for a 1½-in. and a 2½-in. turret lathe. The C. A. Dunham Co., Chicago, has bought a No. 3 milling machine. A Western railroad has placed orders for three Betts-Bridgeford journal-truing lathes. The Rock Island Lines are in the market for a 100-in. boring mill. The Nash Motors Co., which has been such an important buyer of equipment the past few months, will erect an addition to its forge shop at Kenosha, Wis., at a cost of $250,000. It is now asking for figures on nine steam hammers. The International Harvester Co., Chicago, is inquiring for a three-spindle ball bearing high speed drill for export, a 16-in. x 8-ft. engine lathe for a service station, and a forging machine.

Westpfahl Zacsek & Herscher, lamp manufacturers, 745 South Winchester Avenue, Chicago, have leased for five years a two-story factory at 1006 West Twenty-first Street, 100 x 100 ft.

The Dartnell Corporation, publisher, 1801 Leland Avenue, has taken bids through John A. Armstrong, 127 North Dearborn Street, on a two-story printing plant, 52 x 150 ft., to cost $50,000.

The Sinko Tool & Mfg. Co., 1632 North Halsted Street, Chicago, has awarded contract for a one-story factory, 92 x 95 ft., on Crawford Avenue near Lake Street, to cost $30,000.

The Advance Pattern & Foundry Co., 2214-22 West Thirty-sixth Place, Chicago, has awarded contract for a two-story plant, 63 x 124 ft., at 2714-22 West Thirty-sixth Place, to cost $25,000.

John R. Bowes, 30 North LaSalle Street, Chicago, has awarded a contract for a one-story sheet metal shop, 73 x 88 ft., at 5005-11 West Lake Street, to cost $6000.

The American Bolt Corporation, 1732 North Kolmar Avenue, Chicago, will occupy a two-story factory and warehouse, 285 x 306 ft., at West Forty-seventh Street and Turner Avenue, to be built by the Central Manufacturing District. Plans have been prepared by A. Epstein, 2001 West Pershing Road. The building will cost $350,000.

The Clearing Industrial District, Chicago, has awarded contract for a one-story factory, containing 35,000 sq. ft. of floor space, at Laramie Avenue and Sixty-fifth Street, Chicago, to be occupied by the Bersted Mfg. Co., manufacturer of electrical household appliances, now located at 771 Mather Street. The building will cost $75,000.

The International Harvester Co., Wisconsin Steel Works, 106th Street and Torrence Avenue, Chicago, has awarded contract for a one-story extension to its electric station, 51 x 87 ft., to cost $30,000.

The Dallas Brass & Copper Co., 820 Orleans Street, Chicago, has awarded contract for a one-story factory, 100 x 241 ft., on Belden Avenue, to cost $7,500.

The Refrigerator Car Indicator Co., 1821-23 Berteau Avenue, Chicago, recently incorporated, will develop and manufacture a device for installing automatic weighing scales for weighing ice in refrigerator cars. The machine will be fitted with an indicator which will be located on the outside of the car. For the present the product will be manufactured in the plant of the Force Pump Co. at the address given. Officers are B. P. Bates, president; R. H. McElroy, vice-president, and E. A. Burritt, secretary and treasurer.

The Chicago Screw Co., 1026 South Homan Avenue, has taken title to its plant at that address and has also purchased from the Moline Plow Co., Moline, Ill., the buildings on the northeast corner of Fillmore and St. Louis Streets, Chicago.

George H. Breckner, proprietor of a welding shop, Alliance, Neb., will erect a new building, 50 x 100 ft.

Ekman, Holm & Co., architects, Minneapolis, has plans for a foundry, drop forge plant, rolling mill, machine shop, shipping room and offices for the Dirigold Corporation, to be built in that city on a site not yet selected, at an estimated cost of $150,000. The company, of which Oscar von Malmborg is president and Carl A. von Malmborg, secretary, proposes to manufacture an alloy developed in Sweden whoch has the color of gold.

The Glass Novelty Co., manufacturer of wood cribs, 1915 West Nineteenth Street, Chicago, will erect a two-story plant at the corner of Twenty-sixth Street and Kostner Avenue, to cost $500,000.

James B. Clow & Son, 534-46 South Franklin Street, Chicago, manufacturers of pipe, plumbing supplies, etc., has awarded a general contract to the Leonard Construction Co., 37 South Wabash Avenue, for its four-story plant, 115 x 200 ft., at Talman and Fulton Streets, to cost $500,000 with equipment. Work will begin early in the spring. The contracting company is also the architect.

L. P. Runkel, Mobridge, S. D., and associates, have formed a new company to take over the power plant and system of the Sheets Electric Co., Lemmon, S. D. Plans are in progress for an addition, to include the installation of oil-burning engines, generator and accessory equipment.

Russell & Fry, Storm Lake, Iowa, have completed plans for a one-story power house for local commercial service, to cost $40,000 with equipment.

The Illinois Power Co., Springfield, is planning for extensions and improvements in its power house at De Kalb, Ill., to cost $150,000 with equipment. The work will be carried out in connection with a 1925 improvement program totaling $897,000.

The Kedzie Foundry Co., 3234 West Thirty-first Street, Chicago, has awarded contract to A. E. Bjork, 133 West Washington Street, for a one-story addition, 40 x 200 ft. The contractor is also the architect. G. Erlandson is president and treasurer.

The Rockford Paper Box Board Co., Catherine Street, Rockford, Ill., has awarded a general contract to the Holm-Page Co., Kishwaukee Street, for a three-story addition, 70 x 100 ft., to cost $80,000. W. L. Page, Rockford, is architect.

The Russell Grader Mfg. Co., 2037 University Avenue, S. E., Minneapolis, Minn., manufacturer of road machinery and parts, has preliminary plans for new works in the Northwestern Terminal District, to cost more than $450,000 with equipment. E. R. Ludwig, and Sund & Dunham, Essex Building, are associated architects. E. E. Ellertson, is president.

Cleveland

CLEVELAND, Jan. 5.

DEALERS report a fair volume of sales of single machines and inquiries the past week. Export orders included seven turret lathes placed by a Japanese machinery dealer with a Cleveland manufacturer. While it is too early to determine to what extent orders will come out in January, sentiment in the trade is optimistic. The present demand from the automotive industry in Michigan and Ohio is light, being limited mostly to single tools or small lots for fill-in purposes. Railroad inquiries include one from the Pennsylvania system for an internal grinding machine for its Olean, N. Y., shops and a portable combination internal and external grinder for its St. Louis shops. The New York Central is inquiring for a 24-in. single spindle motor driven drilling machine.

The Reliance Electric Engineering Co., Ivanhoe Road, Cleveland, has placed contract with the Austin Co. for a one- and two-story addition, 80 x 162 ft.

The Bryant Heater & Mfg. Co., Cleveland, has outgrown its present quarters at 952 East Seventy-second Street and has acquired approximately six acres on St. Clair Avenue at 179th Street and the New York Central Railroad. The company plans to build on the new site shortly.

The B. F. Goodrich Co., Akron, Ohio, has awarded a contract for a roll grinding factory, one-story, 62 x 142 ft.

The Cleveland Builders Supply & Brick Co., *Leader-News* Building, has awarded contract for a two-story machine shop, 40 x 46 ft. C. D. Wilson is the company's engineer.

The Pioneer Machine & Engineering Co., 1615 Merwin Avenue, Cleveland, contemplates the erection of a new plant.

The city of Cleveland has plans under way for a $3,000,000 sewage disposal plant with a daily capacity of 35,000,000 gal. It will include a pump and boiler house. Two 20,000,000 gal. and one 15,000,000 gal. motor-driven centrifugal pump, a gasoline locomotive and other equipment will be required. William S. Ferguson is director of public service.

The Dennison Sewer Pipe Co., Dennison, Ohio, will shortly begin the erection of extensions to its factory, requiring an expenditure of approximately $50,000. Lockwood-Greene & Co., 1566 Hanna Building, Cleveland, are the architects.

Pumping and electrical equipment will be required for a sewage disposal plant to be built by Akron, Ohio, plans for which are nearing completion. W. F. Peters is director of public service.

Manual training equipment will be provided in a high school to be erected at Willard, Ohio. Granville E. Scott, Citizens National Bank Building, Norwalk, Ohio, is the architect.

The Lamberton Tire & Rubber Co., Barberton, Ohio, has work under way on a new power plant to cost $40,000, for which considerable equipment will be required. Plans are also under way for a three-story addition.

Frederick Sattler, Mineral City, Ohio, and associates, have plans under way for brick and clay works to cost $100,000. A power house and machine shop will be included.

St. Louis

ST. LOUIS, Jan. 5.

THE Union Electric Light & Power Co., St. Louis, will spend $11,000,000 for extensions during 1925, according to Louis H. Egan, president. The larger items consist of enlargement and expansion of the current distribution system; further construction of the Cahokia power plant, including the beginning of the steel work for the third unit, the letting of which has been reported; remodeling of the Union Electric building at Twelfth Boulevard and Locust Street; construction of a 35-mile transmission power line to Crystal City, a feature being a 300-ft. 130-ton steel tower for the span across the Mississippi River, and $200,000 for new machinery for the company's coal mine at Dowell, Ill.

The 1925 budget of the St. Louis-San Francisco Railway, amounting to $5,248,000, includes $107,000 to be spent for machine tools, according to the announcement of officials. The list of tools required has not yet been sent out.

Plans are being completed by the Western Tie & Timber Co., Syndicate Trust Building, St. Louis, for a new one-story plant near Edwardsville, Ill., estimated to cost $150,000 with machinery. Walter Poleman is president; G. C. Graeter is engineer.

The St. Louis Forgings Co., St. Louis, a subsidiary of the Standard Forgings Co., Chicago, will take over the plant of the Laclede Steel Co., at East St. Louis, Ill., recently purchased, heretofore used for steel forgings production. Improvements in equipment are planned. Employment will be given to about 150 men. The acquired plant formerly was the property of the Valley Steel Co.

The Danville Electric Co., Danville, Ark., plans to immediately rebuild the portion of its power plant recently destroyed by fire. Additional equipment will be installed.

The Edward Beisbarth Co., 924 Title Guaranty Building, St. Louis, is planning for the installation of equipment on iron ore property near Williamson, Mo., totaling 1000 acres, to include iron ore washers, crushing machinery, jiggers, power equipment, etc., to develop an initial capacity of about 150 tons per day.

The Central Power & Light Co., Walnut Ridge, Ark., has preliminary plans for additional hydroelectric power development on the Spring River, including improvements in existing stations, estimated to cost $500,000.

The Oil State Refining Co., Enid, Okla., is said to be arranging to rebuild the portion of its refinery recently destroyed by fire with loss estimated at $50,000, including stills and other equipment.

The Sand Springs Railway Co., Sand Springs, Okla., has preliminary plans for rebuilding its car repair and machine shop and car barn, recently destroyed by fire. Additional machinery will be installed. C. O. Tingley is chief engineer.

The Hughes Tool Co., Houston, Tex., has awarded a general contract to the Charles M. Dunning Construction Co., 420½ North Hudson Street, Oklahoma City, Okla., for a one-story machine shop, 60 x 100 ft., at Twenty-first and Santa Fe Streets, Oklahoma City, to cost $20,000.

The Mariand Refining Co., Ponca City, Okla., is said to be planning to rebuild the portion of its oil storage and distributing plant on the outskirts of the city, destroyed by fire Dec. 19, with loss approximating $200,000 with equipment and stock.

The Wonder State Mfg. Co., Boyle Building, Little Rock, Ark., R. L. Saxon, president, recently organized with a capital of $250,000, has acquired the plant and business of the Climber Motor Co., with additional land for expansion. Extensions and improvements will be made and machinery installed for the manufacture of automobile bodies.

Cincinnati

CINCINNATI, Jan. 5.

THE customary holiday dullness marked the machine tool market the past two weeks, but December as a whole was a fair month. The new year opened auspiciously, several manufacturers reporting receipt of orders on the first two days. Inquiries are in good volume and several which had been pending have been closed. In Cincinnati and vicinity, conditions are considerably improved, and it is noticeable that the smaller tool and die shops, which have been a negligible factor in buying for several years, are again coming into the market. Dealers report conditions good, and this applies also to the demand for used tools.

The Ajax and Nash interests were buyers of lathes during the week and the Electric Boat Corporation also was a purchaser. Railroad buying was rather light. The Louisville & Nashville bought a large planer and two lathes, and the New York Central closed for several lathes. According to reports, another large-sized order for miscellaneous tools has been placed for the Russian Government, part of it with local manufacturers. The General Electric Co. has completed purchases for its service station at Cincinnati, 34 items having been bought.

The Wabash Portland Cement Co., Ford Building, Detroit, has awarded contract for a cement plant at Osborn, Ohio. Machine shops will be included, for which equipment will be required.

The Midwest Castings Co., Middletown, Ohio, is making additions and alterations to its plant. It produces malleable iron castings. A new furnace will be installed.

The Hall Grindstone Co., Marietta, Ohio, whose plant was destroyed by fire several months ago, has awarded contract to the Truscon Steel Co. for the erection of a new plant.

The Milton Iron Co., Wellston, Ohio, is considering plans for a one-story foundry, 100 x 200 ft., to cost $80,000 with equipment. H. S. Willard, Jr., is head.

The Miamisburg Paper Co., Miamisburg, Ohio, has awarded a general contract to the I. F. Weber Co., Commercial Building, Dayton, Ohio, for a one-story and basement addition to its mill, 98 x 130 ft., to cost $35,000. Edward J. Mountstephen, U. B. Building, Dayton, is architect.

The Memphis Power & Light Co., Memphis, Tenn., is disposing of a bond issue of $1,000,000, a portion of the proceeds to be used for extensions and improvements in generating plants and system. E. W. Hill is vice-president.

The Board of Public Works, Knoxville, Tenn., contemplates the construction of a pumping plant on the Tennessee River in connection with extensions and betterments in the municipal waterworks, estimated to cost $2,500,000.

The Berger Mfg. Co., Canton, Ohio, manufacturer of metal ceilings, etc., has plans for rebuilding the portion of its works destroyed by fire Dec. 28, with loss estimated at close to $200,000 including equipment.

The Kentucky Hydro-Electric Co., M. E. Taylor Building, Louisville, is considering the construction of a hydro-electric generating plant on the South Fork of the Kentucky River, near Booneville, Ky., reported to cost $450,000.

The Herbrand Co., Fremont, Ohio, manufacturer of forgings, etc., is taking bids for three additions, consisting of a two-story structure, 50 x 65 ft., and two one-story buildings, 80 x 100 ft., and 60 x 150 ft., respectively, to cost approximately $400,000 with equipment. C. Thompson is general manager.

The Memphis Furniture Mfg. Co., 715 South Camilla Street, Memphis, Tenn., has awarded a general contract to the F. J. Ozanne Co., Madison Avenue Temple Building, for an addition totaling about 20,000 sq. ft. Improvements will be made also in the present factory. E. L. Harrison, V. & P. Bank Building, is architect.

The Tennessee Electric Co., Nashville, Tenn., has disposed of a bond issue of $3,000,000, a portion of the proceeds to be used for extensions and improvements in plants and system.

Milwaukee

MILWAUKEE, Jan. 5.

SALES the past week were limited, industries being engaged on inventories and having made no effort to sustain production over the holidays. The impression has grown much stronger during the past 10 days that January trade will be moderately active. Many shops have been delaying even necessary replacements pending developments in the business outlook, and with foundries and machine shops getting new business in increasing volume, equipment buying will naturally follow. Manufacturers of tools are confident that the coming few weeks will witness the most active inquiry within a year.

The Industrial Controller Co., 886 Greenbush Street, Milwaukee, manufacturer of electric controlling devices, is seeking larger quarters and has adopted the expedient of advertising in the newspapers that it is desirous of buying a modern factory with 50,000 to 75,000 sq. ft. A questionnaire is included in the advertisement, which says only replies on this form will receive any consideration. It is hoped to arrange for a purchase so that a transfer of the operation, which will be on a much enlarged scale, may be effected by May 1. Fred W. Magin is secretary and manager.

The Globe Wire & Iron Works, 1015 Atkinson Avenue, Milwaukee, has started work on the erection of a two-story addition, 30 x 75 ft., costing about $25,000 with equipment, for making bank and office railings, elevator cabs and other ornamental iron work. Gustav A. Trepte is president and general manager.

The Wisconsin Public Service Corporation, 559 Marshall Street, Milwaukee, has made public plans for the installation of a 5000-kw. turbo-generator in its steam power plant at Oshkosh, Wis., in charge of A. W. Ryder, local manager. This will increase the capacity to 10,000 kw.

The R. B. Lang Mfg. Co., Eighteenth Street and Holborne Avenue, Racine, Wis., manufacturer of hardware specialties, sheet metal stampings, etc., has incorporated with a capital consisting of 750 shares of common stock without par value. The founder of the business, Robert B. Lang, died some time ago and a reorganization is now being completed by Peter J. Myers, J. B. Simmons and Wayne M. Everett.

The Madison Motor Car Co., 328 West Gorham Street, Madison, Wis., has awarded contracts for a two-story addition, 66 x 132 ft., to its garage and service building, of equal size, and will remodel the original structure. The work will cost about $65,000 and considerable new shop equipment will be installed.

The West Bend, Wis., Construction Co. is lowest bidder at $200,500 for the general work of erecting a new high school and manual training institute at West Bend. The project will not be ready for equipment until Sept. 1. The architects are Foeller, Schober & Stephenson, Green Bay, Wis.

The Hoppe Motor Car Co., Prospect Avenue and Kenilworth Place, Milwaukee, incorporated recently with $50,000 capital to become distributor of the Lincoln car, has let the general contract to the Coddington Engineering Corporation, 290 Third Street, for erecting a two-story sales and service building, 60 x 155 ft. New equipment will be purchased about Feb. 15 or March 1. A. Carl Hoppe is president and general manager.

The Allen Bradley Co., 495 Clinton Street, Milwaukee, manufacturer of rheostats, radio parts and electric controlling devices, is erecting a two-story addition, 30 x 75 ft., estimated to cost about $25,000 complete. Harry L. Bradley is vice-president and treasurer.

The Milwaukee Electric Railway & Light Co., 217 Sycamore Street, Milwaukee, has officially announced its 1925 budget, which calls for the investment of $5,400,000 in extensions and improvements in the electrical branch, including generating stations; $1,200,000 in enlarging the gas properties, and $3,400,000 in extending railroad properties. Col. S. B. Way is vice-president and general manager.

The Appleton, Wis., Common Council is asking bids for furnishing one 10-ton crawler type tractor with snow plow attached; two 25-hp. crawler tractors; three 1-ton dump bodies and one motor-driven grading shovel.

Buffalo

BUFFALO, Jan. 5.

PLANS are being drawn by the Delaware, Lackawanna & Western Railroad Co., 90 West Street, New York, for a one-story car repair shop, 65 x 700 ft., at Sloan, near Halstead Street, East Buffalo, to cost $175,000 with equipment. The engineering department of the company, Hoboken, N. J., is in charge.

The Seneca Iron & Steel Co., Blasdell, N. Y., has plans for an addition primarily for the production of steel sheets for automobile body manufacture, estimated to cost approximately $500,000 with machinery.

Fire, Dec. 24, destroyed a portion of the mill of the Standard Wall Paper Co., Schuylerville, N. Y., with loss of $500,000, including equipment and stock. Plans are under consideration for rebuilding. Headquarters are at Hudson Falls, N. Y.

Bids will be asked early in the spring by the Fancher Furniture Co., Salamanca, N. Y., for its four-story addition, 65 x 140 ft., estimated to cost $100,000 with machinery. John Walrath is treasurer and general manager.

The Rochester Gas & Electric Corporation, Rochester, N. Y., plans the construction of a central steam-operated power plant at 15-17 Lawn Street, extending to 18-20 James Street, to cost approximately $1,000,000 with equipment.

The Rome Wire Co., Rome, N. Y., has acquired the Diamond Wire Co., Clyde Avenue, Buffalo, and will consolidate the two organizations. It is understood that the Buffalo works will be continued in operation.

The Lennox Furnace Co., Marshalltown, Iowa, operating a branch plant on North Salina Street, Syracuse, N. Y., in charge of E. C. Taylor, assistant treasurer, has acquired 20 acres in the town of Eastwood, near Syracuse, upon which it is planned to erect a two-story factory. A power house is also under consideration.

The Doehler Die Casting Corporation, Batavia, N. Y., has acquired 16,605 sq. ft. along the Erie Railroad for extensions to its works. J. J. Dimeo is superintendent.

Electrical pumping machinery and other equipment will be required by the Department of Public Works, City Building, Jamestown, N. Y., in connection with erection of a

sewage disposal and purification plant at Cassadaga, N. Y., to cost $125,000, for which a bond issue is being arranged. Arthur W. Kettle is chairman of the board.

O. L. Monroe, Morristown, N. Y., operating a blacksmithing and machine shop, is in the market for some new equipment, to replace that recently destroyed by fire.

David A. Hillstrom, president Corry-Jamestown Mfg. Co., Corry, Pa., and associates, have acquired property, 40 x 300 ft., in East Washington Street, upon which it is planned to erect a three-story factory for the manufacture of steel and metal furniture. Oliver R. Johnson, Fenton Building, Jamestown, N. Y., is architect and engineer.

Detroit

DETROIT, Jan. 5.

CONTRACT has been let by the Jewett Radio & Phonograph Co., 5680 Twelfth Street, Detroit, to M. B. Hungerford, Pontiac, Mich., for the first unit of its proposed plant on Orchard Lake Avenue, Pontiac, 50 x 200 ft., to cost close to $100,000. Fisher Brothers, 24 West Huron Street, Pontiac, are architects. E. H. Jewett is president.

The Western Board & Paper Co., Kalamazoo, Mich., has work under way on extensions and improvements to cost $60,000. Additional equipment will be provided to increase the capacity to 100 tons of paperboard per day.

The Vincent Steel Process Co., 3131 Bellevue Avenue, Detroit, is said to be contemplating rebuilding the portion of its plant destroyed by fire Dec. 20 with loss of $150,000 including equipment.

The Hurd Lumber & Woodworking Co., South Campbell Avenue, Detroit, is arranging for the erection of the first unit of a proposed plant on Monnier Road, fronting on the line of the Pere Marquette Railroad. Cuthbert & Cuthbert, 327 East Huron Street, Ann Arbor, Mich., are architects.

Ovens, power equipment, conveying and other machinery will be installed in the one and two-story plant, 180 x 190 ft., to be erected by the Tri-State Baking Co., 1531 Lemay Street, Detroit, to cost $165,000. The McCormick Co., 121 South Negley Street, Pittsburgh, is architect and engineer.

The United Chemical Products Co., Calumet, Mich., manufacturer of fertilizers, glue, etc., will rebuild the portion of its plant recently destroyed by fire with loss estimated at $350,000 including machinery.

The Saniwax Paper Co., 4148 North Park Street, Kalamazoo, Mich., is having plans drawn for a one-story and basement addition, 100 x 370 ft., estimated to cost $150,000 with equipment. LeRoy & Newlander, Pratt Building, are architects. George Irvine is president and general manager.

The Jewell Mfg. Co., Lansing, Mich., manufacturer of carbon removers, etc., is arranging a fund of $100,000 for expansion in 1925, to include the erection of a new works, for which plans will be drawn in the near future.

The Board of Education, Dearborn, Mich., plans the installation of manual training equipment in its proposed three-story high school estimated to cost $400,000, for which foundations will be laid at once. G. D. Mason & Co., Standard Bank Building, Detroit, are architects; McColl, Snyder & McLean, Penobscot Building, Detroit, are mechanical engineers.

Fire, Dec. 23, destroyed the mill of the J. W. Wells Lumber Co., Menominee, Mich., with a reported loss of $300,000. Plans for rebuilding and the installation of electrically operated equipment are under way.

Indiana

INDIANAPOLIS, Jan. 5.

BIDS will be asked during this month by the Berryhill Malleable Iron Co., 1215 Powell Street, Evansville, Ind., John Berryhill, president, for the erection of the initial units of its new plant, including a one-story foundry, 120 x 240 ft., estimated to cost $100,000 with equipment. The company was formed recently by local interests, with capital of $150,000.

The Wanner Malleable Castings Co., recently organized under Delaware laws with capital of $1,850,000, will take over and expand the plant and business of the company of same name at Hammond, Ind. A meeting of stockholders has been called on Jan. 12 to arrange plans.

The Kitselman Brothers Mfg. Co., Muncie, Ind., manufacturer of wire fencing and other wire goods, has plans for additions to cost approximately $100,000 with equipment. A. L. and E. F. Kitselman head the organization.

The City Council, East Chicago, Ind., has preliminary plans for the installation of a new municipal sewage pumping plant, estimated to cost $200,000. It is expected to ask bids in from 60 to 90 days. Pearse, Greeley & Hansen, 6 North Michigan Avenue, Chicago, are engineers.

Harry C. Sheridan, referee in bankruptcy for the Haynes Automobile Co., Kokomo, Ind., has authorized the sale of the company's plant and property at a public auction, Jan. 22.

The Chicago & Eastern Illinois Railway Co., 332 South Michigan Avenue, Chicago, has tentative plans for a new freight terminal and shops at Evansville, Ind., consisting of engine house, boiler shop, machine shop, forge shop, planing mills and power house, with freight houses and trackage, estimated to cost $1,500,000.

The National Biscuit Co., Pine and Daly Streets, Indianapolis, has plans for a one-story power house, in connection with additions to its local factory.

The General Sheet Metal Works, South Bend, Ind., has awarded a general contract to the Hay-Weaver Co., 127 East Sample Street, for a one-story addition, 60 x 125 ft., to cost $25,000. C. E. Miller, J. M. S. Building, is architect.

The plant of the Central Railway Signal Co., Hammond, Ind., was recently seriously damaged by fire.

The City Council, Marion, Ind., has engaged Harry Gorman, Indianapolis, consulting engineer, to prepare plans for a municipal light and power plant to cost $50,000.

South Atlantic States

BALTIMORE, Jan. 5.

AN injunction granted a number of months ago restraining the City Council, Hagerstown, Md., from constructing a municipal electric light and power plant has been dismissed and will soon be arranged. The station is estimated to cost $250,000 with equipment. The State Legislature has authorized the city to issue bonds and erect the plant.

The general purchasing officer, Panama Canal, Washington, will receive bids until Jan. 19 for iron and steel pipe, tin pipe, welding rods, drill bits, hacksaw blades, files, dies, chain, etc., Panama circular 1648; until Jan. 12 for shop equipment, including bending and straightening machine, shaper, molder and flanging clamp, Panama circular 1647.

The Merchants' Cold Storage Co., Charlotte, N. C., plans the construction of a three-story refrigerating and cold storage plant at 219 South College Street, estimated to cost $100,000 with machinery. J. W. Stinson is secretary.

The Georgia White Brick Co., Gordon, Ga., now being organized with a capital of $500,000 by W. F. Demuth, head of the Canton Brick & Fireproofing Co., Canton, Ohio, and associates, is planning the construction of works on a 300-acre tract at Gordon to cost about $300,000. A power house will be built, using oil-burning engines. Machinery will be installed for the development of clay property for raw material supply.

Ovens, power equipment, conveying and other machinery will be installed in the proposed plant to be erected by the National Biscuit Co., Atlanta, Ga., on local site recently purchased, estimated to cost $900,000. Headquarters are at 85 Ninth Avenue, New York.

Samuel T. Williams, 8 East Lexington Street, Baltimore, mechanical engineer, has inquiries out for a direct-connected engine and generator, about 250 kw. capacity, direct-current, with steam pressure, 110 lb.; also, for steam engine only, about 350 hp., with boiler pressure 110 lb., suitable for direct-connection to electric generator.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until Jan. 13 for 64,000 condenser tubes, seamless admiralty metal, for the Norfolk, Va., and Puget Sound Navy Yards, schedule 3111; for rail and track supplies and 15 dump cars for Mare Island, schedule 3091; until Jan. 20 for 1000 ft. ignition cable, 5000 ft. lighting and power wire, and 10,000 ft. instrument wire for the Puget Sound Yard, schedule 3097.

The Blue Ridge Power Co., 144 East Fair Street, Spartanburg, S. C., has plans for the construction of a hydro-electric generating station on the Green River, near Saluda, S. C., with initial capacity of 70,000 hp., estimated to cost $4,000,000 with steel tower transmission line. Mees & Mees, Kinney Building, Charlotte, N. C., are engineers.

C. C. Codington, Inc., West Trade Street, Charlotte, N. C., has plans for a five-story automobile service, repair and garage building, 100 x 200 ft., at Trade and North Graham Streets, to cost $150,000. Albert Kahn, Marquette Building, Detroit, is architect.

The Broad River Power Co., Columbia, S. C., has disposed of a bond issue of $1,500,000, a considerable portion of the proceeds to be used for extensions and improvements. The company was formed recently to take over and consolidate the Columbia Gas & Electric Co. and the Parr Shoals Power Co., and has construction in progress on a steam-operated electric power plant at Parr Shoals. The first unit will be completed next fall, when work will begin at once on another unit. A steel tower transmission line

will be built, about 70 miles long. The company is operated by the General Gas & Electric Co., 50 Pine Street, New York. W. S. Barstow is president of both organizations.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for one 40 hp. double cylinder, double drum, steam hoisting engine; one 200-hp. motor, three-phase, 2200 volts, slip-ring type, with base, pulley, controller and oil switch, and three 75 kva. outdoor type transformers, single phase, 6600-2200 volts.

The Bureau of Yards and Docks, Navy Department, Washington, will soon ask bids for oil engines for the naval station at St. Thomas, Virgin Islands, specification 5062.

The Atlantic Ice & Coal Corporation, Washington Street Viaduct, Atlanta, Ga., has arranged for an increase in capital from $8,000,000 to $25,000,000, a portion of the proceeds to be used for extensions. Three new plants will be built at Fort Valley, Ga., and Tampa and Gillett, Fla. The capacity of the plant at Atlanta will be increased with the installation of considerable additional machinery.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for a cableway, 1000-ft. span, to carry a 1-yd. capacity bucket; one vacuum pump, 6 x 8 x 12 in. or 8 x 10 x 14 in., low duty; conveyor, with about 2000 ft. of conveyor belt, 24-in. wide; complete broom-making machinery; three transformers, 75 kva. each, outdoor type; 3-drum engine, with boiler, about 10 x 12 in., suitable for operating cableway; screens for sand and gravel, and one surface type condenser, about 4000 sq. ft. surface.

The Highland Mills, Inc., Griffin, Ga., contemplates the construction of a power house and pumping plant in connection with a proposed textile mill. The entire project will cost more than $350,000. J. E. Sirrine & Co., 309 South Main Street, Greenville, S. C., is engineer.

The chief of engineers, United States Army, Washington, will take bids until Jan. 17 for one gasoline engine centrifugal pumping set, circular 14.

The Red Springs Ice Co., Red Springs, N. C., is arranging for the construction of an ice-manufacturing plant to replace its works recently destroyed by fire. Cornell, Mathews & Walker, 1014 State Bank Building, Orlando, Fla., are engineers. W. B. Townsend is president.

The Gulf States

BIRMINGHAM, Jan. 5.

CONTRACT has been let by the Alamo Iron Works, San Antonio, Tex., to Coleman & Jenkins, 106 Thirteenth Street, for a four-story addition estimated to cost $50,000. George Willis, Chandler Building, is architect.

The United States Engineers, Florence, Ala., are asking bids until Jan. 31, for steel lock gates, including castings, fittings, etc., for the navigation lock of the Wilson Dam, Tennessee River.

The Humphreys-Boyd Oil Co., Mexia, Tex., will proceed with the construction of a natural gasoline manufacturing plant on the Wesson property, near the city, estimated to cost $150,000 with equipment.

The Texas Central Power Co., Childress, Tex., is completing plans for a steam-operated electric power plant to cost $75,000. Headquarters are at San Antonio, Tex.

The Independent Ice & Refrigerating Co., Abilene, Tex., will erect a one-story ice-manufacturing plant at Sixth and Oak Streets, 60 x 105 ft., estimated to cost $80,000.

The Board of Water Commissioners, Houston, Tex., plans the construction of a steam-operated power house and two pumping plants, with steam-operated pumping units, in connection with proposed extensions and betterments in the municipal waterworks, estimated to cost $500,000.

The Harbison-Walker Refractories Co., Farmers' Bank Building, Pittsburgh, Pa., has awarded contract to the Bessemer Engineering & Construction Co., Bessemer, Ala., for excavations and other preliminary work for its branch plant at Bessemer. The initial works will cost approximately $500,000 with machinery.

The South Florida Cold Storage & Ice Corporation, Miami, Fla., recently organized, has purchased a site, 150 x 590 ft., at Hialeah, Fla., for a four-story cold storage refrigerating plant, estimated to cost $500,000 with equipment. George C. Hyde, Hialeah, is engineer. W. B. Rosborough, 8 Geralda Avenue, Coral Gables, Fla., is secretary.

The Birmingham Electric Co., Birmingham, is disposing of a preferred stock issue of $1,960,000, a portion of the proceeds to be used for extensions and improvements.

The Valley Electric & Ice Co., Mission, Tex., will begin the construction of a power plant to cost $75,000. John W. Marriott, Frost Building, San Antonio, is architect.

The Central Motor Co., 914 Austin Avenue, Waco, Tex., has completed plans for a one and two-story service, repair and garage building, 80 x 350 ft., to cost $70,000 with equipment. Milton W. Scott, 421½ Franklin Street, is architect. J. N. Mitchell is general manager.

The Andalusia Casket Co., Andalusia, Ala., recently organized with a capital of $50,000, is said to be considering the erection of a plant to cost $40,000 with equipment. J. M. Robinson, Andalusia, is president.

The Common Council, Roby, Tex., is considering the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $40,000.

The Truscon Steel Co., Youngstown, manufacturer of pressed steel products, is contemplating the erection of a one-story factory branch and distributing plant at Jacksonville, Fla., to cost $25,000.

The Humble Oil & Refining Co., Houston, Tex., is considering the construction of a new gasoline refinery in the Wortham oilfield, near Mexia, Tex., to cost about $70,000.

The Solidite Products Co., St. Petersburg, Fla., U. H. Clarke, president, has acquired about 150 acres at Lake Wales, Fla., and contemplates the erection of a plant for the manufacture of special cement and concrete products, to cost $130,000 with machinery.

The New Orleans Public Belt Railway is in the market for one 80-in. driving wheel lathe, one 36-in. geared head lathe, one 1500-lb. steam hammer, one 28-in. geared head lathe and one 1½-in. bolt cutter.

Kifuri Brothers, Eagle Pass, Tex., have preliminary plans for the erection of a steam power house near that city, where a new industrial community is to be established. Boilers, turbines, generators and other machinery will be required.

The Thompson Ice Co., Key West, Fla., is contemplating improvements and enlargements to its ice manufacturing plant, estimated to cost $80,000. Transmission and conveying, as well as hoisting and other machinery will be required. N. Thompson is president.

Canada

TORONTO, Jan. 5.

LOOKING back over business for the year which has just closed, Canadian machine-tool builders and dealers in most cases report sales somewhat better than those for 1923. During the past twelve months large lists were few and far between, but sales of individual tools were numerous and covered every line of industrial activity in the Dominion. Builders of equipment for electrical development plants had one of the best years in their history and it is estimated that Canada's power development was augmented by some 1,000,000 hp. Automotive plants were busy throughout the greater part of the year, equipment for pulp and paper mills was in good demand, and large purchases were made for the mining industry of northern Ontario. For the year 1925 selling interests are strongly of the opinion that this will be one of the best years in Canada's history.

H. B. Dawson, Port Arthur, Ont., is in the market for machines for a sheet metal shop, including electric motor, power riveter, press, punch, foot squaring shears, hand rolls and adjustable folders.

The Holstein Rubber Co. of Hartford, Conn., is reported to be contemplating the erection of a plant in Montreal, for the manufacture of rubber flooring, etc.

The St. Lawrence Paper Mills, Ltd., Three Rivers, Que., will build an addition to cost $3,000,000. F. O. White is engineer.

The Ditchburn Boats, Ltd., Gravenhurst, Ont., have started work on a boat factory at Orillia, Ont. E. Webb & Son, are general conractors.

Contracts have been awarded in connection with a $40,000 addition to the plant of the Dominion Glass Co., Ltd., Hamilton, Ont. W. H. Cooper has the general contract and the Hamilton Bridge Co. will supply the structural steel.

The six-story flour mill at London, Ont., owned by Hunt Brothers, was destroyed by fire Dec. 30, with a loss of $750,000. The building, excluding machinery and equipment, was valued at $500,000. Reconstruction will be undertaken as soon as arrangements can be made.

T. W. Jutten, mayor, City Hall, Hamilton, Ont., will receive bids until Jan. 21, for the supply and erection of one 500,000 gal. and three 1,500,000 gal. vertical centrifugal sewage pumps. Specifications can be obtained from W. L. McFaul, city engineer.

Bids will be called in the near future for the supply of two sewage pumps for the municipality of Riverside, Ont. One to be 350 gal. per min. and a standby of 800 gal. per min. with automatic starting equipment. Angus Smith is engineer.

The ratepayers of Owen Sound, Ont., carried a by-law Jan. 1 for the construction of a 1,000,000-bu. grain elevator to cost $450,000.

McColl Bros., 114 Don Esplanade, Toronto, are in the market for boilers, stacks and 26 steel tanks for an oil refinery to be built at Carlaw Avenue and Keating Street.

Western Canada

The Capilano Timber Co., Vancouver, B. C., will start work soon on the first unit of a mill to cost $400,000. The ultimate expenditure on the plant will be about $1,000,000.

The Powell River Co., Ltd., Powell River, B. C., is building a pulp grinding unit at a cost of $300,000.

It is reported that the Manitoba Pulp & Paper Co., Ltd., Winnipeg, will start work soon on a pulp and paper plant at St. Boniface, Man., to cost $5,000,000.

Pacific Coast

SAN FRANCISCO, Dec. 31.

BIDS will soon be asked by the Board of Supervisors, Alameda County, Oakland, Cal., for a two-story and basement power house at Fourteenth Avenue and East Twenty-seventh Street, to cost approximately $200,000 with equipment. H. H. Meyers, Kohl Building, San Francisco, is architect.

The John A. Roeblings Sons' Co., 646 Folsom Street, San Francisco, manufacturer of wire rope, cables, etc., will take bids at once for its two-story factory branch and distributing plant, 200 x 400 ft., estimated to cost $250,000 with equipment. Frederick W. Quandt, Humboldt Bank Building, is architect. Headquarters are at Trenton, N. J.

The Fruit Growers Association, Eugene, Ore., is planning the erection of a one-story machine shop, 60 x 160 ft., for which a local site has been purchased.

The Walla Walla Iron Works, Walla Walla, Wash., is considering the erection of an addition to cost $30,000.

The Los Angeles Gas & Electric Corporation, Los Angeles, is arranging an expansion and improvement program for 1925 to cost about $12,369,000, covering extensions in electric and gas plants and systems.

The Pacific Electric Mfg. Co., 827 Folsom Street, San Francisco, manufacturer of electrical equipment, has awarded contracts for its one-story plant, 100 x 300 ft., at Keith and Donner Streets, to cost $65,000. George H. Wiermeyer, 57 Post Street, is architect.

Felix T. Swan, 3844 Linwood Avenue, Oakland, Cal., secretary and manager New Yolo-Solano Reclamation District, will take bids during January for the installation of an irrigation system on property in Yolo and Solano Counties, to include the installation of electric-operated pumping equipment. The entire project will cost approximately $500,000. Fred C. Herman is chief engineer.

The E. J. Chubuck Co., Sixth and Carlton Streets, Oakland, manufacturer of bakery ovens and kindred products, has purchased property, 130 x 200 ft., at Emeryville, Cal., and contemplates the early erection of a new plant to occupy the entire site.

The Utah Power & Light Co., Salt Lake City, Utah, will proceed with the construction of a hydroelectric generating plant on the Bear River, near Cutler, Utah, designed for an initial capacity of 42,000 hp. The entire project, with transmission system, is estimated to cost $5,000,000. The company is operated by the Electric Bond & Share Co., 71 Broadway, New York.

The St. Helens Pulp & Paper Co., St. Helens, Ore., has increased its capital stock to $2,500,000, the proceeds of which will be used to build a pulp and paper mill with a daily capacity of 100 tons of kraft paper. H. F. McCormick is one of the principals.

Will Make Small Steel Castings

The Ridge Metal Products Co. has been organized with $150,000 initial capitalization by A. Onorato and associates of Youngstown, Ohio, to manufacture a diversified line of small steel castings. The new company will occupy the building No. 2 at Mineral Ridge, in Trumbull county, of the old Ohio Steel Products Co., now defunct. This building is 60 x 400 ft. The company has ordered $40,000 worth of equipment, and the property is being prepared for actual operations. Charles Zipf of Niles, Ohio, is president, while Mr. Onorato is vice-president and treasurer.

Building No. 1 at the Mineral Ridge plant will be occupied by a Cleveland fabricating interest for the manufacture of small pipe specialties, including conduit elbows, couplings and boiler tubes. This building is 80 x 420 ft.

The Mineral Ridge plant was acquired several months ago by Mr. Onorato and associates from the Austin Co., Cleveland construction interest, which erected the buildings and acquired them at receiver's sale, following the failure of the Ohio Steel Products Co.

Laclede Steel Co. Sells Forging Plant

The Laclede Steel Co., Arcade Building, St. Louis, has sold its forging plant at East St. Louis, Ill., to a new company to be known as the St. Louis Forgings Co., a subsidiary of the Standard Forgings Co., Chicago, with the same general officers as the parent company, according to an announcement of W. W. Scott, Jr., vice-president and general manager of sales of the Laclede Steel Co.

The St. Louis Forgings Co. opened an office Jan. 2 at 521 Security Building, St. Louis, with James Cook, now in the Chicago office of the Standard, in charge. It will continue the production of car and locomotive axles and forgings. It is understood that the Laclede company has made an arrangement to supply the new company with billets.

The forgings plant was originally the Valley Steel Co., which was acquired by the Laclede company shortly before the war. The plant employs about 100 men.

Wage distribution by Youngstown industries of $69,900,000 for the first 11 months of the year indicates a total payroll in 1924 of $76,000,000, or $2,000,000 less than last year. The decline is attributed to the sharp depression during the mid-year which curtailed output and employment. The 1924 payroll, however, compares favorably with the wage disbursement of $54,046,000 in 1922 and $32,000,000 in 1913, the peak pre-war year. Because of the favorable outlook, a possible payroll of $90,000,000 in 1925 is being predicted.

Industrial News Items

The Central Steel Co., Massillon, Ohio, has placed a contract with the Alliance Machine Co., Alliance, Ohio, for a 120-ton traveling car dumper and ore handling bridge to be erected in connection with the company's new blast furnace, contracts for which were recently placed. Both units will be used in handling iron ore. The bridge will have a 340-ft. span, an 87-ft. cantilever at one end and a 33-ft. cantilever at the other end, making its total length 461 ft. It will be equipped with a man trolley and 10-ton bucket.

The W. W. Sly Mfg. Co. has recently taken orders for tumbling mill equipment from the Fanner Mfg. Co., Cleveland; the Rensselaer Valve Co., Troy, N. Y.; Sprague-Sells Corporation, Hoopeston, Ill., and Detroit Stove Works, Detroit. Other orders included a complete sand blast room including dust arrester equipment placed by the Lycoming Motors Corporation, Williamsport, Pa.; a tilting sand blast mill purchased by the American Gear & Mfg. Co., Jackson, Mich.; sand blast room and dust arrester equipment placed by the Industrial Steel Castings Co., Toledo, Ohio, and cinder mill equipment purchased by the Beloit Iron Works, Beloit, Wis.

The Wellman-Seaver-Morgan Co., Cleveland, has taken an order for seven 10-ft. gas producers for the Gary Tube Works. Other recent gas producer orders taken by this company include three for the Federal Tube Co., Economy, Pa.; two for one of the Cleveland plants of the American Steel & Wire Co.; one for the Owens Bottle Co., and two for the Thatcher Mfg. Co., Streator, Ill.

The Ventura Refining Co. has sub-leased from the Pacific Steel & Wire Co. three acres fronting on the Inner Harbor at Nineteenth Avenue and Dennison Street, Oakland, Cal., and will erect a modern petroleum products distributing terminal costing approximately $250,000, which will be in operation early in March, 1925. This terminal will be the general and distributing headquarters of the Ventura Refining Co., for all business north of Tehachapi. Improvements to be made at once include: (a) Three 30,000-gal. tanks for gasoline, one 10,000-bbl. tank for gasoline, seven lubricating oil tanks. (b) One concrete warehouse and casing plant of 15,000 sq. ft. of floor space for barreled and cased goods.

Sale of plant and equipment of the Covert Gear Co., Lockport, N. Y., a branch of the National Motors Co., Dayton, Ohio, has been ordered by Federal Judge John R. Hazel at Buffalo, following a mortgage foreclosure by the Chicago Trust Co. It is subjected by liens totaling $120,000.

The Newton Steel Co., Newton Falls, Ohio, has bought a top roll friction drive from the United Engineering & Foundry Co. From the same company the Bethlehem Steel Co. has bought a flying shear for installation at Lebanon, Pa.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in., base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.20c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.55c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.15c.
Square, flats and hex	4.65c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.45c.	.....
Nos. 22 and 24	4.45c. to 4.60c.	5.10c.
No. 26	4.50c. to 4.65c.	5.15c.
No. 28*	4.60c. to 4.75c.	5.25c.
No. 30	4.70c. to 4.95c.	.....

Galvanized

	Per Lb.
No. 14	4.70c. to 4.85c.
No. 16	4.85c. to 5.00c.
Nos. 18 and 20	5.00c. to 5.15c.
Nos. 22 and 24	5.15c. to 5.30c.
No. 26	5.30c. to 5.45c.
No. 28*	5.60c. to 5.75c.
No. 30	6.10c. to 6.25c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	—41	—24	½ in. Butt	— 4	+19
¾ in. Butt	—46	—32	¾ in. Butt	—11	+ 9
1-3 in. Butt	—48	—34	1-1½ in. Butt	—14	+ 6
2½-6 in. Lap	—44	—30	2 in. Lap	— 5	+14
7-8 in. Lap	—41	—11	2½-6 in. Lap	— 9	+ 9
9-12 in. Lap	—34	— 6	7-12 in. Lap	— 3	+16

Bolts and Screws

Machine bolts, cut thread, 45 and 10 per cent off list
Carriage bolts, cut thread,
35 to 35 and 10 per cent off list
Coach screws, 45 and 10 per cent off list
Wood screws, flat head iron,
75, 20, 10 and 5 per cent off list

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.
Annealed soft	4.50c. to 4.75c.
Galvanized annealed	5.15c. to 5.40c.
Coppered basic	5.15c. to 5.40c.
Tinned soft Bessemer	6.15c. to 6.40c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅜c. to 20⅜c.
High brass wire	19⅞c. to 20⅞c.
Brass rods	17⅜c. to 18⅜c.
Brass tube, brazed	27⅜c. to 28⅜c.
Brass tube, seamless	24 c. to 25 c.
Copper tube, seamless	25 c. to 26 c.

Copper Sheets

Sheet copper, hot rolled, 22¾c. to 23¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14 x 20		
	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20		Prime	Seconds
IC	$11.25	$8.85	80 lb.	$6.15	$5.90
IX	12.85	10.85	90 lb.	6.30	6.05
IXX	14.40	12.55	100 lb.	6.45	6.20
IXXX	15.75	13.85	IC	6.65	6.40
IXXXX	17.00	15.05	IX	7.85	7.60
			IXX	9.00	8.75
			IXXX	10.35	10.10
			IXXXX	11.35	11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	62c.
Bar	68c. to 70c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9c.
Sheet zinc, No. 9 base, casks	12c. open 12½c.

Lead and Solder*

American pig lead	11½ to 12½c.
Bar lead	15c.
Solder, ½ and ½ guaranteed	43½c.
No. 1 solder	41c.
Refined solder	35c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	17c. to 18c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.

Old Metals

The market continues strong and is advancing. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.75
Copper, heavy wire	12.50
Copper, light bottoms	10.50
Brass, heavy	8.00
Brass, light	6.75
Heavy machine composition	9.50
No. 1 yellow brass turnings	8.75
No. 1 red brass or composition turnings	8.75
Lead, heavy	8.75
Lead, tea	7.00
Zinc	4.75
Cast aluminum	16.75
Sheet aluminum	16.75